DOCUMENT RESUME

ED 026 314 24 SP 002 163

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Appendix I. An Experimental Model for Preparing Teachers to Develop Behavioral Objectives; the Washington State University and Bellevue (Washington) Public Schools Career Teaching Project.

Northwest Regional Educational Lab., Portland, Oreg.

Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No-BR-8-9022

Pub Date Oct 68

Contract-OEC-0-8-089022(010)

Note-88p.; Appendix I in A Competency Based, Field Centered, Systems Approach to Elementary Teacher Education; Final Report. Vol. II, p134-221.

EDRS Price MF-$0.50 HC-$4.50

Descriptors-Achievement Tests, Affective Behavior, *Behavioral Objectives, Cognitive Processes, Diagnostic Tests, Educational Research, Essay Tests, *Instructional Materials, Learning Activities, Learning Experience, Learning Processes, *Models, Performance Criteria, Systems Approach, *Task Analysis, Task Performance, Taxonomy, *Teacher Education

Identifiers-Affective Domain, Cognitive Domain, *ComField Model Teacher Education Program, Taxonomy of Educational Objectives

Six tasks designed to prepare teachers to develop behavioral objectives are detailed: (1) Define "behavioral objective," and list characteristics of behavioral objectives. (2) Distinguish between objectives which are behaviorally stated and those which are not. (3) Write behavioral objectives for learning activities appropriate to your special field of teaching. (4) Write objectives for your own field for the cognitive domain of behavior: for the knowledge level of behavior and for higher levels of behavior. (5) Write behavioral objectives for learning activities (appropriate to your field of teaching) at the first three levels specified in TAXONOMY OF EDUCATIONAL OBJECTIVES--AFFECTIVE DOMAIN. (6) Write behavioral objectives for learning activities (appropriate to your field of teaching) in the psychomotor domain. After the statement of each task, a model (encompassing the activity, an optional activity, diagnosis, evaluation, an additional activity if needed, and a criterion task) of the task is provided. Also included, as needed, are directions to students, tests on task achievement, diagnostic tests, items for activity, and additional explanatory materials. This document and SP 002 155-SP 002 180 comprise the appendixes for the ComField Model Teacher Education Program Specifications in SP 002 154. (Author/SG)

ED026314

APPENDIX I--AN EXPERIMENTAL MODEL FOR PREPARING TEACHERS TO DEVELOP BEHAVIORAL OBJECTIVES

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Public Schools Career Teacher Project

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Institutions and Agencies by the
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THE WASHINGTON STATE UNIVERSITY - BELLEVUE SCHOOLS CAREER TEACHER PROJECT

TASK #1. Define "behavioral objective," and list characteristics of behavioral objectives.

TASK #2. Distinguish between objectives which are behaviorally stated and those not so stated.

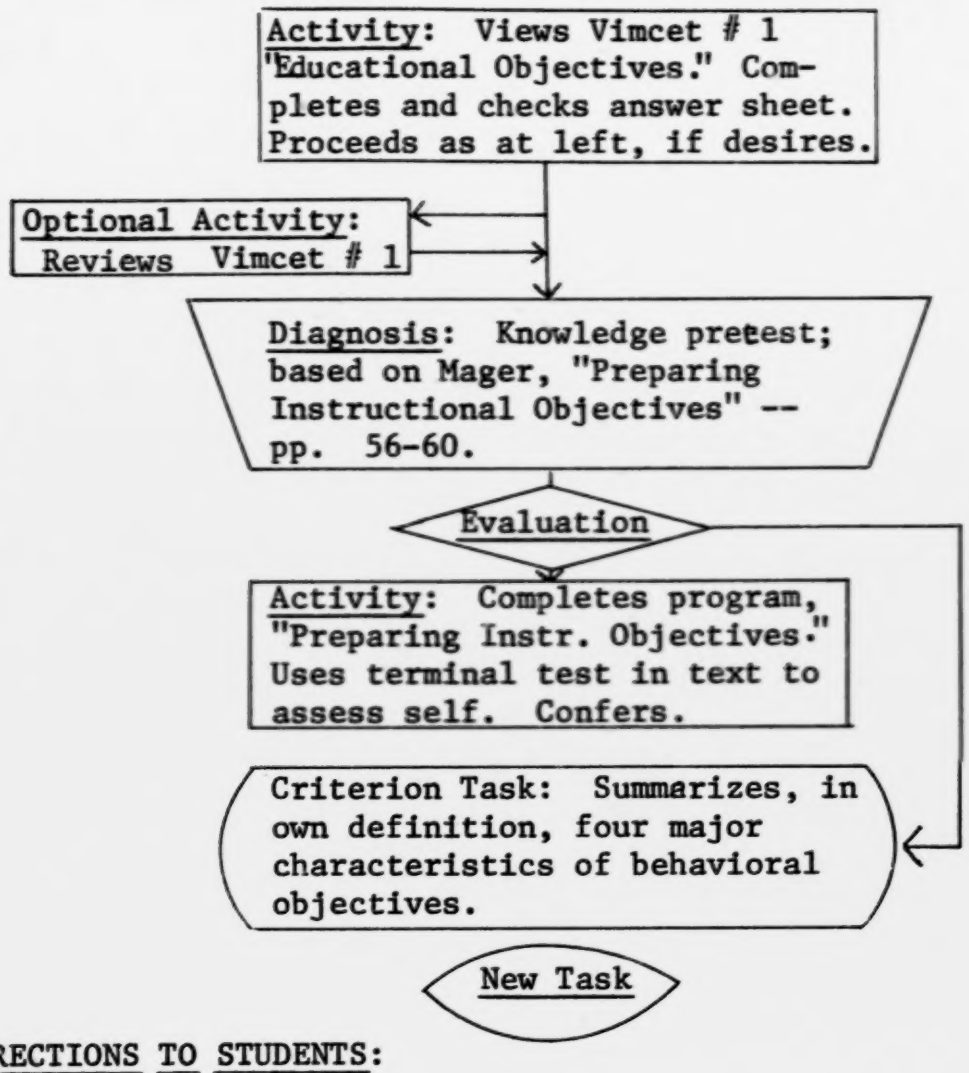
TASK #3. Write behavioral objectives for learning activities appropriate to trainee's special field of teaching.

TASK #4. Write objectives for own field for cognitive domain of behavior; (a) for knowledge level of behavior, and (b) for higher levels of behavior.

TASK #5. Write behavioral objectives for learning activities (appropriate to your field of teaching) at the first 3 levels specified in the "Taxonomy of Educational Objectives - Affective Domain."

TASK #6. Write behavioral objectives for learning activities (appropriate to your field of teaching) in the psychomotor domain.

TASK # 1: Define "behavioral objectives," and list characteristics of behavioral objectives


Activity: Views Vimcet # 1 "Educational Objectives." Completes and checks answer sheet. Proceeds as at left, if desires.
Optional Activity: Reviews Vimcet # 1
Diagnosis: Knowledge pretest; based on Mager, "Preparing Instructional Objectives" -- pp. 56-60.
Evaluation
Activity: Completes program, "Preparing Instr. Objectives." Uses terminal test in text to assess self. Confers.
Criterion Task: Summarizes, in own definition, four major characteristics of behavioral objectives.
New Task

DIRECTIONS TO STUDENTS:

1. Outcome desired: c.f. above statement of Task # 1

2. Step # 1: View the Vimcet filmstrip #1, "Educational Objectives," and respond to same by completing and checking the answer sheet as the filmstrip progresses. If you desire, view the filmstrip a second time before taking the pretest.

3. Step # 2: Take a pretest to help determine your basic knowledge regarding behavioral objectives. This is not a graded test, but simply a device to help determine whether or not you have mastered what you need to know to complete this task.

4. Step # 3: Having evaluated the pretests, the staff member will indicate to you what is felt to be your next appropriate step, that is Step #4 or #5.

5. Step # 4: Complete the program, "Preparing Instructional Objectives," by Mager. Assess your understanding of Mager by responding to steps in the program and by completing the tests included. Confer with staff before proceeding to Step # 5. (Suggestion: Students who have been directed to Step # 5 without Step # 4 may profit much by reading Mager, since this is the text in the field.)

6. Step # 5: Write a definition of behavioral objectives which includes the four major characteristics of such objectives. Submit your definition to the staff member in charge.

SELF-TEST: Preparing Instructional Objectives, Mager

1. Are the following objectives stated in at least performance (behavioral) terms? Does each at least name an act the learner would be performing when demonstrating that he has achieved the objective?

	YES	NO
a. To understand the principles of salesmanship.	___	___
b. To be able to write three examples of the logical fallacy of the undistributed middle.	___	___
c. To be able to understand the meaning of Ohm's Law.	___	___
d. To be able to name the bones of the body.	___	___
e. To be able to list the principles of secondary school administration.	___	___
f. To know the plays of Shakespeare.	___	___
g. To really understand the law of magnetism.	___	___

	YES	NO
h. To be able to identify instructional objectives that indicate what the learner will be doing when demonstrating achievement of objective.	___	___

2. Following are two characteristics of a statement of instructional objectives. Which of these characteristics are present in each of the objectives below?

   A. Identifies the behavior to be demonstrated by the student.

   B. Indicates a standard or criterion of acceptable performance. (For each of the statements below check whether each of the characteristics is present.)

	A	B
a. The student must be able to understand the theory of evolution. Evidence of understanding will be obtained from a written essay on evolution.	___	___
b. The student is to be able to complete a 100-item multiple choice examination on the subject of marine biology. The lower limit of acceptable performance will be 85 items answered correctly within an examination period of 90 minutes.	___	___
c. The student must be able to correctly name the items depicted by each of a series of 20 blueprints.	___	___
d. To demonstrate his ability to read an assembly blueprint the student must be able to make the item depicted by the blueprint given him at the time of examination. Student will be allowed the use of all tools in the shop.	___	___
e. During the final examination, and without reference, the student must be able to write a description of the steps involved in making a blueprint.	___	___

		A	B
f.	The student is to be able to draw his service revolver and fire five rounds (shots) from the hip within a period of three seconds. At 25 yards all rounds must hit the standard silhouette target; at 50 yards he must hit with at least two of his five rounds.	____	____
g.	The student must know well the five cardinal rules of homicide investigation.	____	____
h.	The student must be able to fill out a standard accident report.	____	____
i.	The student must be able to write a coherent essay on the subject "How to Write Objectives for a Course in Law Appreciation." Student may use all references noted during the course, as well as class notes. Student must write his essay on paper provided by the examiner.	____	____
j.	Beside each of the following psychological principles, the student must be able to write the name of the authors of experiments on which the principle is based (list of principles appended).	____	____
k.	Given a list of objectives, the learner should be able to evaluate each.	____	____
l.	To list the important characteristics of branching and linear self-instructional programs.	____	____
m.	The student is to be able to name, and give an example, of each of six programming techniques useful for eliciting a correct response. To be considered correct, items listed by the student must appear on the handout entitled "Programming Techniques" issued by the instructor during the course.	____	____
n.	To develop logical approaches in the solution of personnel problems.	____	____

3. Here is a rather poorly stated objective:
"The student must be able to understand the laws pertaining to contracts."

Which of the following test situations would have to be considered appropriate for testing whether the objective had been achieved?

Test Situations:	APPROPRIATE	NOT APPROPRIATE
a. The learner is asked to write the name of each of the justices of the Supreme Court.	___	___
b. Given a contract with certain legal terms circled, the student is asked to write a definition of each of the circled terms.	___	___
c. Given a legal contract and a list of contract laws, the learner is asked to indicate which of the laws, if any, are violated by the wording of the contract.	___	___
d. The student is asked to answer 50 multiple choice questions on the subject of legal contract.	___	___

4. Which of the test situations below would elicit the kind of behavior by which you could tell if the student had reached the objective?
Objective: Given a properly functioning audiometer of any model, the student must be able to make the adjustments and control settings necessary prior to the conduct of a standard hearing test.

Test Situations:	APPROPRIATE	NOT APPROPRIATE
a. List the steps, in their proper order, for setting up an audiometer for use.	___	___

	APPROPRIATE	NOT APPROPRIATE
b. Proceed to the audiometer on Table No. 5 and set it up so that it can be used to administer a standard hearing test.	___	___
c. Describe the steps followed in the conduct of a standard hearing test.	____	___
d. Discuss the role of the audiometer in the hearing clinic.	___	___

ANSWER TO SELF-TEST

1. a. NO
   b. YES
   c. NO
   d. YES
   e. YES
   f. NO
   g. NO
   h. YES

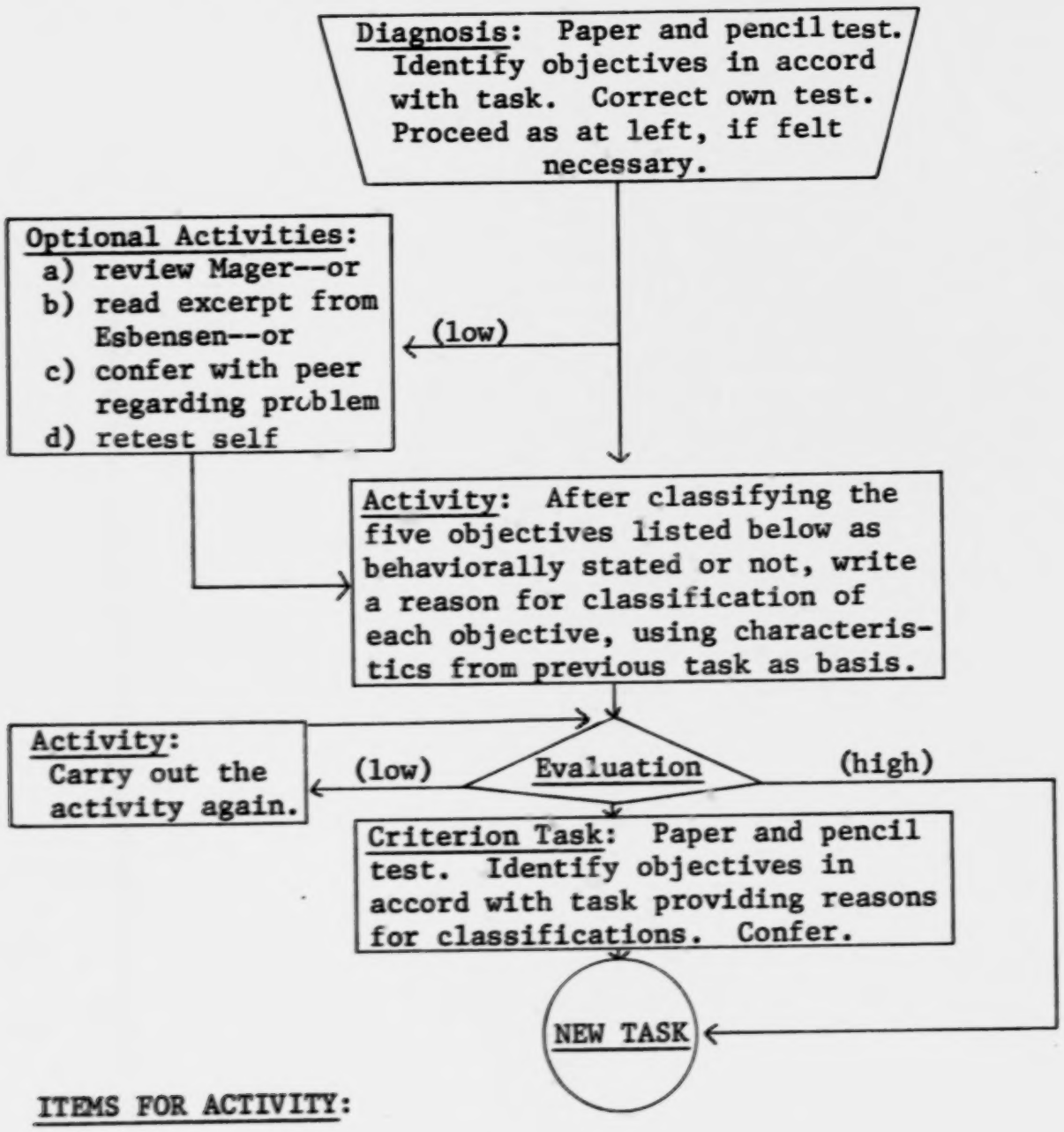
2.

	A	B
a.	YES	NO
b.	YES	YES
c.	YES	YES
d.	YES	NO
e.	YES	NO
f.	YES	YES
g.	NO	NO
h.	YES	NO
i.	YES	NO
j.	YES	NO
k.	NO	NO
l.	YES	NO
m.	YES	YES
n.	NO	NO

3. a. Not Appropriate
   b. Appropriate
   c. Appropriate
   d. Appropriate

4. a. Not Appropriate
   b. Appropriate
   c. Not Appropriate
   d. Not Appropriate

TASK # 2: Distinguish between objectives which are behaviorally stated and those not so stated,


Diagnosis: Paper and pencil test. Identify objectives in accord with task. Correct own test. Proceed as at left, if felt necessary.
Optional Activities:
a) review Mager--or
b) read excerpt from Esbensen--or
c) confer with peer regarding problem
d) retest self
(low)
Activity: After classifying the five objectives listed below as behaviorally stated or not, write a reason for classification of each objective, using characteristics from previous task as basis.
Activity: Carry out the activity again.
(low)
Evaluation
(high)
Criterion Task: Paper and pencil test. Identify objectives in accord with task providing reasons for classifications. Confer.
NEW TASK

ITEMS FOR ACTIVITY:

1. The student will exhibit patriotism.

2. With 100% accuracy, the student will be able to subtract whole numbers.

3. Assigned a specific item to be ordered, the student will write a letter evidencing his ability to write a letter of purchase.

4. The student will develop good health habits.

5. Provided a budget outline sheet with appropriate percentages indicated, the student will be able to indicate with complete accuracy how many dollars of a net monthly salary of $600 will be budgeted for each item on the outline sheet.

DIAGNOSTIC TEST FOR TASK # 2

Place an X before any of the following instructional objectives which are properly stated.

_____ 1. The student will be able to comprehend thoroughly the ways in which our constitution permeates our everyday life.

_____ 2. When presented with a list of nouns and pronouns, the student will be able to label each word correctly.

_____ 3. Student will be able to see the value of reading the "classics" in his leisure time.

_____ 4. The student will be able to write an essay employing one of three logical organizations given in class which exhibits no grammatical errors.

_____ 5. The student will be able to learn the number of voters in his precinct.

_____ 6. The student will be able to list those articles in the constitution which relate to "due process of law."

_____ 7. Students will realize the importance of knowing the approximate date at which a given literary work was produced.

_____ 8. The teacher will cover the key tools of the chemistry lab, that is, the Bunsen burner and various types of test tubes.

_____ 9. Given a list of 10 actual municipal court decisions, the student will be able to select the six which violate key tenets of the constitution and subsequently write an essay briefly explaining the nature of these violations.

_____10. The student will orally recite the names of six chemical compounds containing three or more elements.

_____11. The student will be able to cite some of the literary "classics" and briefly describe in an essay those features which give them universal appeal.

_____12. The student will grasp the significance of civic responsibility.

_____13. The student will be able to name the date when women were first permitted to vote.

_____14. The teacher will discuss the grammatical forms of the amendments to the constitution.

_____15. The student will be cognizant of the important role scientific investigation has played in the field of chemistry and will become conversant with the relationship between scientific inquiry and the everyday life of the individual.

_____16. The teacher will help the class to become proficient communicators in written English.

_____17. Given the names of well-known novels and the names of contemporary authors, the student will be able to correctly match them in a test.

_____18. The student will be able to write an essay in which he contrasts the arguments for having a democracy or totalitarian state.

_____19. The student will learn the parts of speech.

_____20. The student will be capable of setting up an experimental hypothesis test in the field of quantitative chemical analysis so that presented with an unknown chemical compound he can thereafter correctly identify its constituent elements.

ANSWERS TO DIAGNOSTIC TEST

Objectives properly stated:

2, 4, 6, 9, 10, 11, 13, 17, 18, 20.

OPTIONAL ACTIVITY (b) ESBENSEN EXTRACT

For many years, educators have talked about the importance of instructional objectives. The purpose of an instructional objective is to make clear to teachers, students, and other interested persons what it is that needs to be taught - or what it is that has been taught.

A well-written instructional objective should say three things:

1. It should say what it is that a student who has mastered the objective will be able to do.
2. It should say under what conditions the student will be able to do this.
3. It should say to what extent the student will be able to do this.

To put the matter in a single sentence, a well-written instructional objective should specify under what conditions and to what extent a certain kind of student performance can be expected to take place.

Performance - conditions - extend. Let us consider - -

I. Performance

Performing means doing. A student who performs something does something.

Here are two statements. Which one is expressed in terms of student performance?

A. The student will have a good understanding of the alphabet, A through Z.

B. The student will be able to pronounce the names of the letters of the alphabet, A through Z.

Statement B tells what it is that the student will be able to do. He will be able to pronounce the names of the letters of the alphabet, A through Z.

Statement A tells us that the student will have a good understanding of the letters of the alphabet. But this is not very clear. We cannot tell what it is that the student is supposed to be able to do as a result of this understanding.

Let's try another pair of statements. Which one is expressed in terms of student performance?

A. The student will have an adequate comprehension of the mechanics of punctuation.

B. Given a sentence containing an error in punctuation, the student will correct the mistake.

Statement B tells what it is that the student will do. He will correct the error in punctuation.

Statement A, which says that the student will have an adequate comprehension of the mechanics of punctuation, is rather cloudy. We cannot tell what it is that the student is supposed to be able to do as a result of his comprehension.

At this point, an objection may be raised. Isn't the person who is comprehending something doing something? Isn't intellectual performance an acceptable kind of student performance?

Certainly. The difficulty is that mental activity, as such, is not directly observable. We cannot literally open up a person's head and see the thinking that is going on inside. If it is to be of use to us, a statement of performance must specify some sort of behavior that can be observed.

This does not mean that we are not concerned about intellectual performance. It does mean that since mental activity, as such, is not directly observable, some sort of behavior that is observable will have to stand for or represent the intellectual performance we have in mind.

For example, suppose that we are interested in having students know something about the writing style of Ernest Hemingway. Whatever may be intellectually involved in the attainment of this goal, it should be apparent that the language of our aim as stated leaves much to be desired.

What is the student who knows able to do that the student who does not know is not able to do? This is the important question because, until we have worked out a clear answer to it, we cannot measure the accomplishment of our instructional purpo[illegible]. Although there is no single answer to the question we have posed (our objective of "knowing something" is too vague for that), here is a possible statement of desired performance: Given ten pairs of short prose passages - each pair having one selection by

Ernest Hemingway and one by a different author - the student is able, with at least 90% accuracy, to choose the ten selections written by Hemingway.

Performance - conditions - extent. Let us now consider - -

II. Conditions

Here is one of our earlier statements concerning the alphabet: The student will be able to pronounce the names of the letters of the alphabet, A through Z. We have said that this statement is expressed in terms of student performance. Does this statement also set forth the conditions under which the performance is to take place?

No, it does not. For one thing, we cannot tell from our statement whether the student is to pronounce the names of the letters at sight or from memory. If the letters are to be shown, we do not know whether the student is to work with capital letters, small letters, or both. Nor do we know whether the student is to work with these letters in regular sequence or in random order. Obviously, each set of conditions is substantially different from the rest, and will make its own special demands upon the student who attempts to accomplish the objective.

Let's examine two more statements. Which one sets forth the conditions under which a certain kind of performance is to take place?

A. Given the Dolch list of the ninety-five most common nouns, the student will be able to pronounce correctly all the words on this list.

B. The student will be able to pronounce correctly at least 90% of all words found in most beginning reading books.

Statement A, which tells us that the Dolch list of the ninety-five most common nouns will be used, sets the conditions for the demonstration of student mastery. We are told that these particular words, and no others, are the ones at issue for this objective.

Statement B, offering us only the dubious clue of "words found in most beginning reading books," does not tell us enough. Our conditions need to be defined more precisely than this.

We have come now to the matter of the extent and level of performance. A well-written instructional objective will establish an acceptable minimum standard of achievement.

Look at this objective: Given twenty sentences containing both common and proper nouns, the student will be able to identify with very few mistakes both kinds of nouns. Does this objective establish a minimum standard of achievement?

No, it does not. To way that the student is to perform "with very few mistakes" leaves open the question: how many mistakes are only a very few?

Here is the Hemingway objective we looked at earlier: Given ten pairs of short prose passages - each pair having one selection by Ernest Hemingway and one by a different author - the student is able, with at least 90% accuracy, to choose the ten selections written by Hemingway. Does this objective establish a minimum standard of achievement?

Yes, it does. The student is expected to be able, "with at least 90% accuracy, to choose the ten selections written by Hemingway." This constitutes a minimum standard of achievement.

Let's try one more objective: The student should be able to pronounce from memory, and in sequence, the names of the letters of the alphabet, A through Z.

Does this objective establish a minimum standard of achievement?

Yes, it does. The objective implies that we are looking for 100% mastery. However, we could, if we want to be explicit, restate our objective in this way: The student should be able to pronounce from memory, in sequence, and with 100% accuracy, the names of the letters of the alphabet, A through Z.

An instructional objective should not ordinarily be limited to specific means (particular materials or methods), but should be stated in terms that permit the use of various procedures. Look at this statement of an objective: Given the California Test Bureau's E-F level programmed booklet on capitalization, the student is able to work through the exercises in this booklet with at least 90% accuracy. Is this objective limited to the use of a particular instructional item or procedure?

Yes, it is. The objective is expressed exclusively in terms of performance with a specific booklet. Although the particular kind of skill development that is promoted by this booklet is presumably also fostered by other instructional materials and methods, no such options are available under the terms of our objective as it is now written.

Look at this statement of an objective: Given twenty sentences containing a variety of mistakes in capitalization, the student is able, with at least 90% accuracy, to identify and rewrite correctly each word that has a mistake in capitalization. Is this objective limited to the use of a particular instructional item or procedure?

No, it is not. The objective, as now stated, permits us to use a number of instructional items that show promise in being able to help students attain the desired performance. Among these items are not only the California Test Bureau's E-F level material, but the somewhat simpler C-D level presentation, a programmed booklet by D. C. Heath, Unit II of English 2200, Unit 9 of English 2600, Lessons 87 and 88 of English 3200, several filmstrips on capital letters, and so on.

III. Extent

Finally, a well-written instructional objective will suggest how its accomplishment can be measured. This follows from our view that a well-written objective specifies under what conditions and to what extent a certain kind of student performance can be expected to take place.

Look at this objective: The student should know the alphabet. Does this objective suggest how its accomplishment can be measured?

No, it does not. The reason for this is that knowing the alphabet can mean different things to different people. Therefore, depending upon what is meant, the measuring of this knowing will take different forms.

Suppose we elaborate upon our objective so that it reads: Shown the letters of the alphabet in random order (in both upper and lower case form), the student is able to say the name of each letter with 100% accuracy. Does our objective now suggest how its accomplishment can be measured?

Yes, it does. It tells us that the student will be shown the letters of the alphabet, that he will be shown these letters in both upper and lower case form and in random order, and that he will be called upon to say with 100% accuracy the name of each letter shown. The objective, in other words, makes it plain how its accomplishments can be measured.

If teachers at all levels of schooling would be this explicit in writing instructional objectives, they might reasonably hope to eliminate almost immediately one cause of learning failure among students: the traditional fuzziness of classroom assignments.

ITEMS FOR CRITERION TASK # 2

1. Having studied many kinds of tests, the student will understand the importance of the readiness test.

2. Having analyzed the idealism basic to our democracy, the student will grasp the significance of idealism for a specific way of life.

3. Given a list of twenty educational objectives, the student will be able to identify, without error, those objectives behaviorally stated.

4. Presented a profile of a pupil's performance on a standardized test, the student will be able to identify, with complete accuracy, the pupil's age and grade norm as well as his percentile and stanine rankings.

5. The student will be able to score at least 90% on a spelling quiz based on the list of twenty words taken from the social studies unit.

6. Presented a scrambled list of fifteen steps to be followed in preparing paper mache masks, the student will be able to list the proper sequence of the steps.

7. Presented a dittoed list of the rules, the student will learn the rules governing the use of the comma.

8. The student will enjoy the works of the masters as well as the works of the Monkees.

9. Presented with a list containing the names of ten American authors and fifteen novels, the student will be able to match authors with novels with 90% accuracy.

10. Presented with an audiotape containing excerpts from the works of various composers, the student will be able to identify, without error, the works of Beethoven.

TASK # 2: ITEMS FOR ACTIVITY

Partial list of defects based upon characteristics from Task # 1.

1. Not behaviorally stated - does not describe observable behavior or a product of behavior.
   No criterion of acceptable performance.
   Fails to define the conditions under which the behavior is to occur.

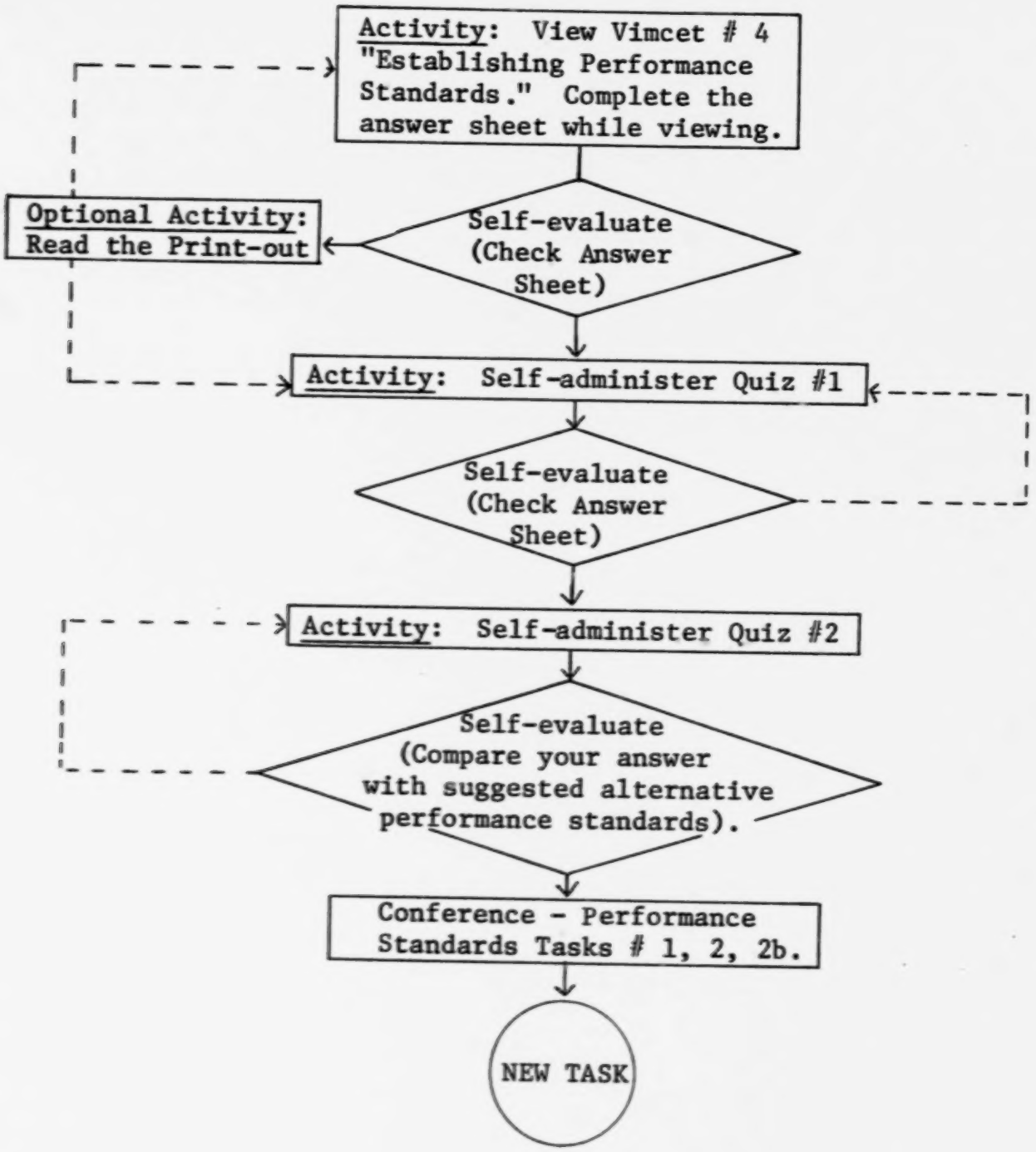
2. Fails to specify conditions ex. "To subtract whole numbers from whole numbers wherein the minuend is greater than the subtrahend." -- also absent is the information with regard to the magnitude of these numbers.

3. Criterion of acceptable performance not defined - failure to specify restrictions and limitations - (grammar, composition, spelling, format).

4. Same as # 1.

5. Satisfies criteria - "indicate" could be replaced by a more incisive operation.

TASK # 2-b: Student is able to identify pupil performance standards in objective statements and construct same.


Activity: View Vimcet # 4 "Establishing Performance Standards." Complete the answer sheet while viewing.
Self-evaluate (Check Answer Sheet)
Optional Activity: Read the Print-out
Activity: Self-administer Quiz #1
Self-evaluate (Check Answer Sheet)
Activity: Self-administer Quiz #2
Self-evaluate (Compare your answer with suggested alternative performance standards).
Conference - Performance Standards Tasks # 1, 2, 2b.
NEW TASK

ANSWER SHEET TO ACCOMPANY VIMCET # 4

1. A B
2. YES NO
3. YES NO
4. YES NO
5. YES NO

6. _____

7. YES NO

8. _____

9. YES NO

10. _____

11. YES NO
12. A B C
13. A B C
14. A B C D
15. A B C

16. _____

17. _____

18. _____

19. _____

ESTABLISHING PERFORMANCE STANDARDS--Printout

Understanding levels of performance is extremely important to any good teacher. Such a concept is, of cours, related to the careful specification of student behavior when constructing objectives. The necessity for this program becomes obvious when, even after students understand and can generate behavioral objectives, they are still stymied regarding how to tell when their objectives had been accomplished and how to tell a "good" student from a poor one. With a behavioral objective alone, for example, to add numbers, there is no way to tell how well a student has to perform to be considered adequate, and consequently no method of evaluating the teacher's instructional proficiency. The necessity for performance standards, or minimal levels as they are sometimes called, has been emphasized by Mager. (See Task #1)

While Mager tends to describe performance standards almost entirely in terms of quantitative considerations (no more than 2 errors; 75 percent correct) discussions with students indicated a need to deal systematically with qualitative attributes of behavior which could be considered minimal standards. The program is designed, therefore, to deal with qualitative and quantitative standards in such a way to aid you in assessing individual differences of achievement among your pupils and, eventually, in having a base against which to judge the effectiveness of your own instructional efforts.

Extablishing performance standards is a program designed to help you make explicit your expectations of student achievement. At the conclusion of the program, you should be able to perform the following behaviors:

1. When given a statement of an objective, to identify the portion of it, if any, which describes a student performance standard (a level of achievement which enable you to identify those students who have satisfactorily achieved the objective).

2. When given an objective, to identify the portion of it, if any, which specifies the class performance standard (achievement levels used to judge the adequacy of instruction).

3. When provided with an objective, to construct performance standards of the two types listed above using both quantitative and qualitative standards.

ESTABLISHING PERFORMANCE STANDARDS QUIZ # 1

NAME_____

Directions: For the following objectives, circle S if the objective has only a student minimal level of learner behavior; circle C if the objective has a class minimal level of learner behavior; circle N if the objective has no minimal level of learner behavior.

S C N 1. The class will answer correctly 10 out of 12 multiple choice questions on the Roman Empire.

S C N 2. The students will compose an essay on the topic of their summer vacation.

S C N 3. At least 10 students in the class will sign up for a senior lifesaving course at the conclusion of a unit on water safety.

S C N 4. Seventy-five percent of the students will understand differential equations.

S C N 5. Students will recite with no more than one error Milton's sonnet "On His Blindness."

S C N 6. 60% of the students will prepare 500 word book reports on famous social scientists.

S C N 7. The students will thoroughly comprehend at least 80% of the scientific theories treated in class.

S C N 8. The students will paint a still-life study employing two point perspective and at least three colors.

S C N 9. Everyone in class will orally recite a given Spanish dialog with no errors in pronunciation.

S C N 10. Students will be able to match chemical compounds with their valences on a written test.

Directions: The following objectives include performance standards of learner behavior. Underline the portion of each objective which specifies the performance standard.

11. The student will write a composition which exhibits no spelling errors.

12. Ninety percent of the students will be able to label all parts of a diagram of the human skeleton.

13. At least 20 students will voluntarily select poetry books from the library.

14. All members of the class will participate at least twice in a class discussion on foreign policy.

Directions: Rewrite this objective so that it exhibits both a class and a student minimal level:

15. THE STUDENT WILL ANSWER A COMPLETION EXAMINATION ON MEDIEVAL ENGLAND.

Directions: Rewrite this objective so that it exhibits a student minimal level only:

16. THE STUDENT WILL BE ABLE TO SOLVE STATISTICS PROBLEMS.

PERFORMANCE STANDARDS FOR HIGH LEVEL OBJECTIVES QUIZ # 2

TO THE STUDENT: The following objective statement is an example which meets the criterion of qualitative performance standard.

OBJECTIVE: WHEN GIVEN A POEM NOT PREVIOUSLY TREATED IN CLASS, A STUDENT WILL BE ABLE TO WRITE AN ANALYSIS OF IT IN WHICH HE DEALS WITH ITS THEME, USE OF LITERARY DEVICE AND AUTHOR'S STYLE.

In the space below, write down alternative performance standards

Compare with suggested alternative performance standards.

SUGGESTED ALTERNATIVE PERFORMANCE STANDARDS

1. Student must identify the real or correct theme as viewed by the teacher.

2. Student may formulate a statement of theme which must be supported by at least one relevant textual reference.

3. Student describes unity of poem by specifically pointing out the consistency of images.

4. Student includes a discussion of the relationship of theme to choice of language, meter.

5. Student identifies similar themes in other literature read during the course.

6. Student must identify the type (s) of literary device used in the poem and explain their importance in terms of their interpretation of the theme.

7. Paper is well organized, e.g., introduction presents major thesis and subsequent paragraphs deal with different aspects of this thesis; transitions are provided and topics in adjacent paragraphs are related, asides and afterthoughts do not appear frequently.

8. Style of paper is acceptable, e.g., excessive use of passive voice is avoided; language is general English; use of obscure or pedantic words is minimal. There are no errors in sentence construction; tenses remain consistant throughout the paper.

ANSWERS TO QUIZ # 1

1.	S	6.	C
2.	N	7.	N
3.	C	8.	S
4.	N	9.	C
5.	S	10.	N

11. No spelling errors.

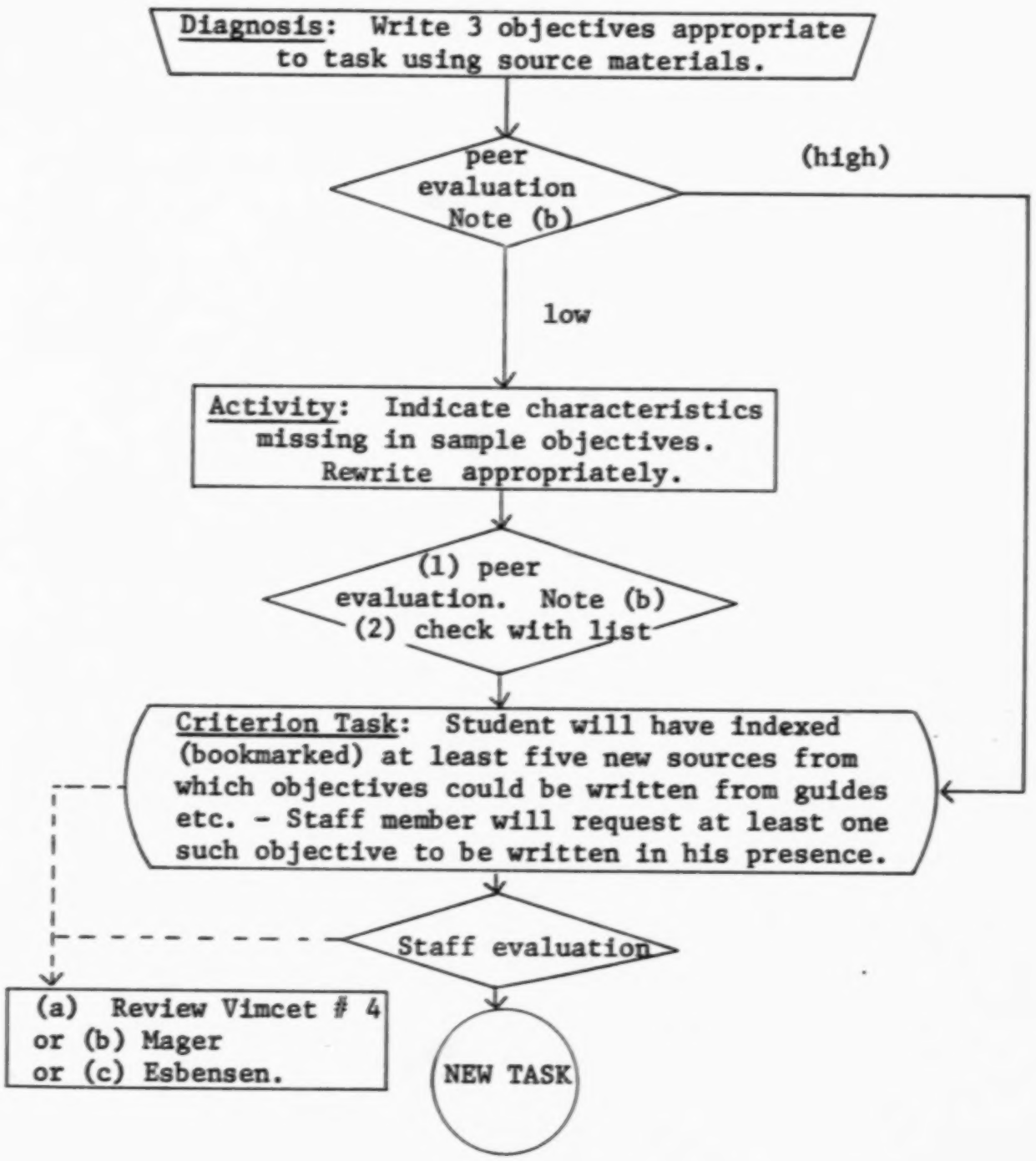
12. Ninety percent of the students
all parts of a diagram

13. At least 20 students

14. All members
at least twice

TASK # 3: Write behavioral objective for learning activities appropriate to <u>your</u> field of teaching.

Note: (a) Use curriculum guide and/or appropriate texts of Bellevue system as sources of objectives.
(b) Work in small groups (preferably four per group) where peer evaluation is indicated.


Diagnosis: Write 3 objectives appropriate to task using source materials.
peer evaluation Note (b)
(high)
low
Activity: Indicate characteristics missing in sample objectives. Rewrite appropriately.
(1) peer evaluation. Note (b)
(2) check with list
Criterion Task: Student will have indexed (bookmarked) at least five new sources from which objectives could be written from guides etc. - Staff member will request at least one such objective to be written in his presence.
Staff evaluation
(a) Review Vimcet # 4
or (b) Mager
or (c) Esbensen.
NEW TASK

SAMPLE OBJECTIVES FOR ACTIVITY

1. Pupil will be able to identify various countries.

   Missing characteristics

   Rewrite

2. Pupil will be able to indicate fallacies existent in a persuasive essay.

   Missing characteristics

   Rewrite

3. Pupil will be able to add simple fractions.

   Missing characteristics

   Rewrite

4. Pupil will be able to write a narrative paragraph

   Missing characteristics

   Rewrite

5. Pupil will be able to really understand music.

   Missing characteristics

   Rewrite

Missing Characteristics - Activity I

KEY: a = failure to identify and name the overall behavior act.
b = failure to define the important conditions under which the behavior is to occur. (givens and/or restrictions and limitations)
c = failure to define what constitutes acceptable performance (performance standards.)

1. a b c

2. a b c

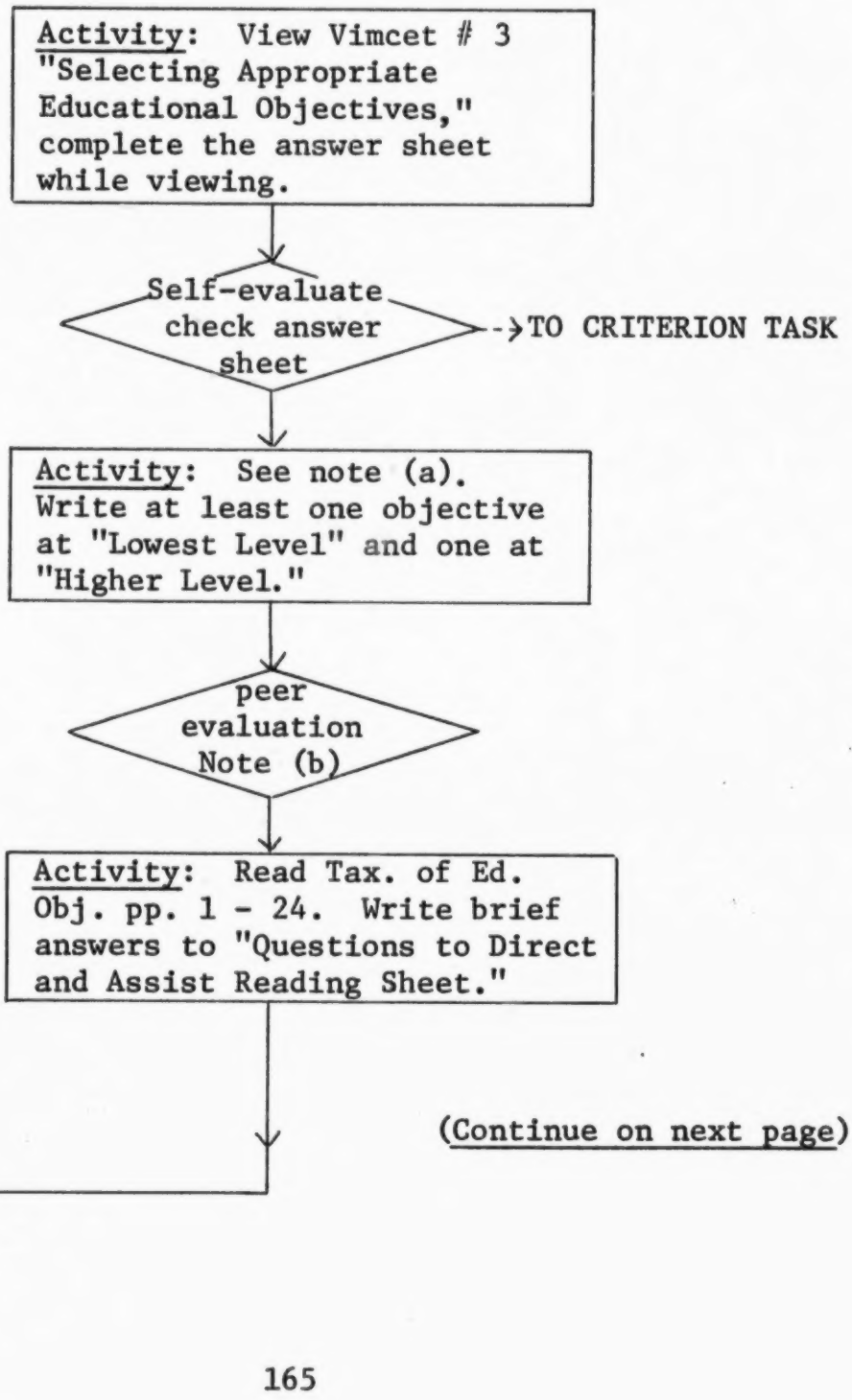
3. b c

4. b c

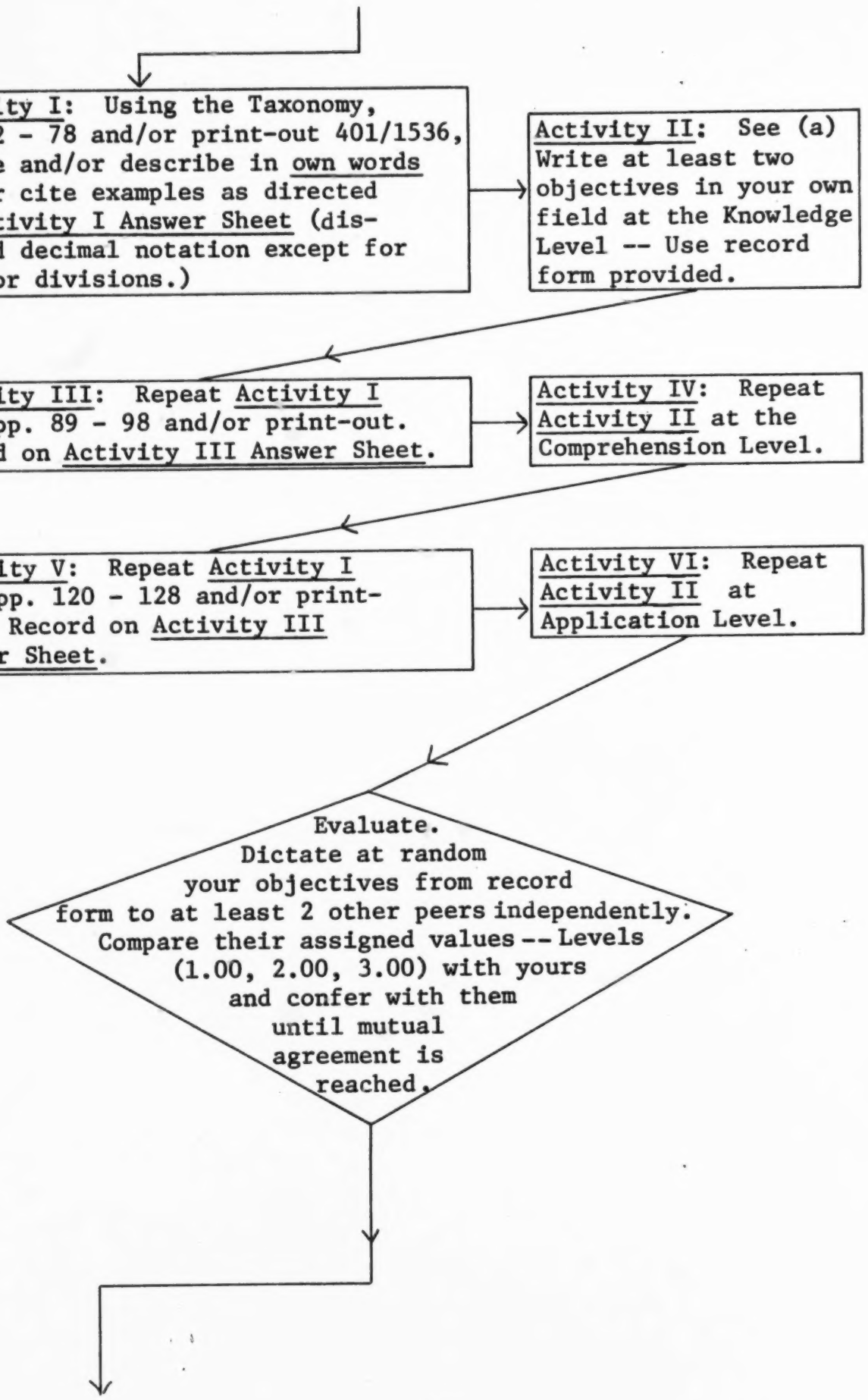
5. a b c

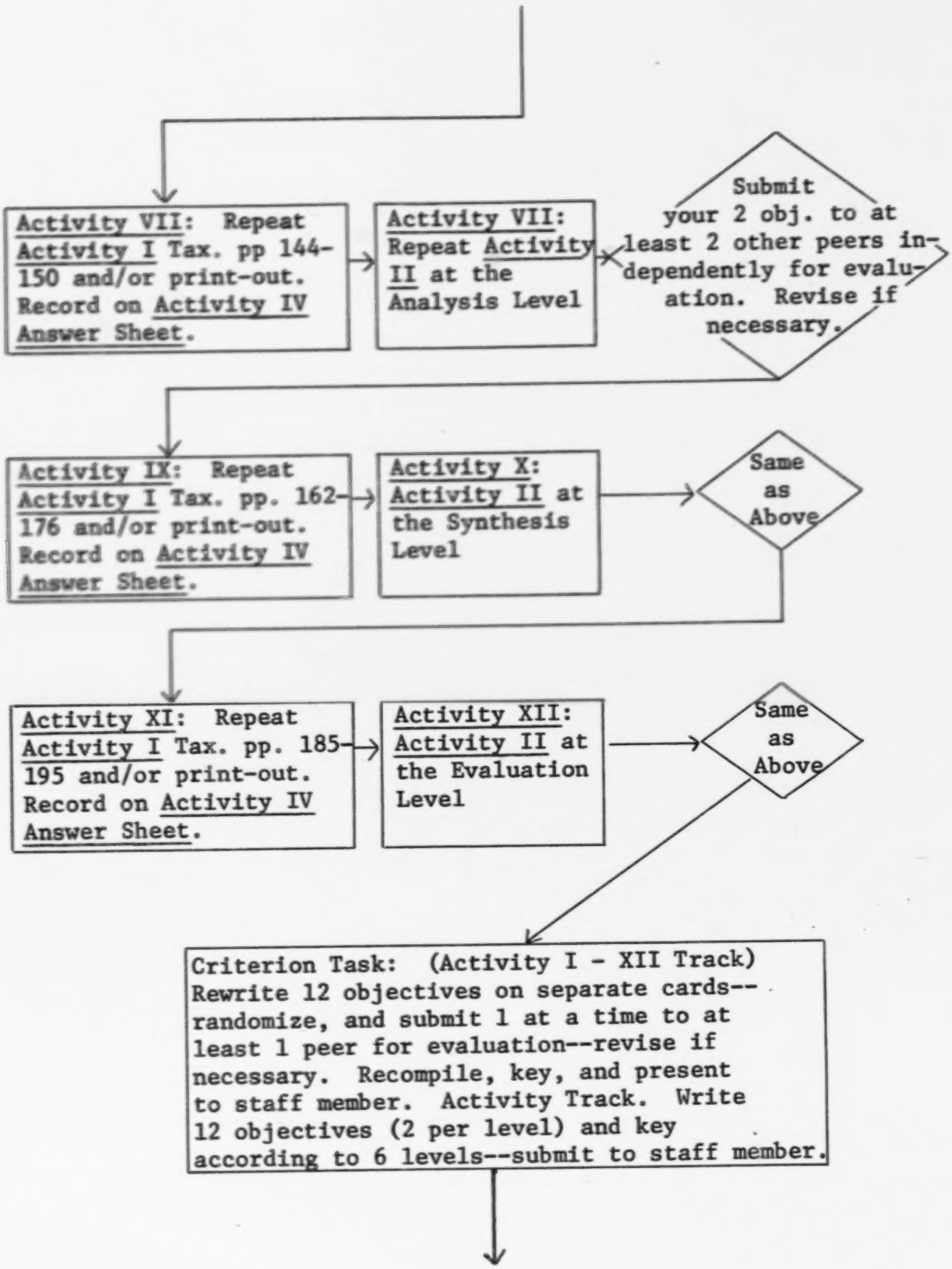
TASK # 4: Write behavioral objective for learning activities (appropriate to your field of teaching) at the 6 levels specified in "Taxonomy of Educational Objectives - Cognitive Domain."

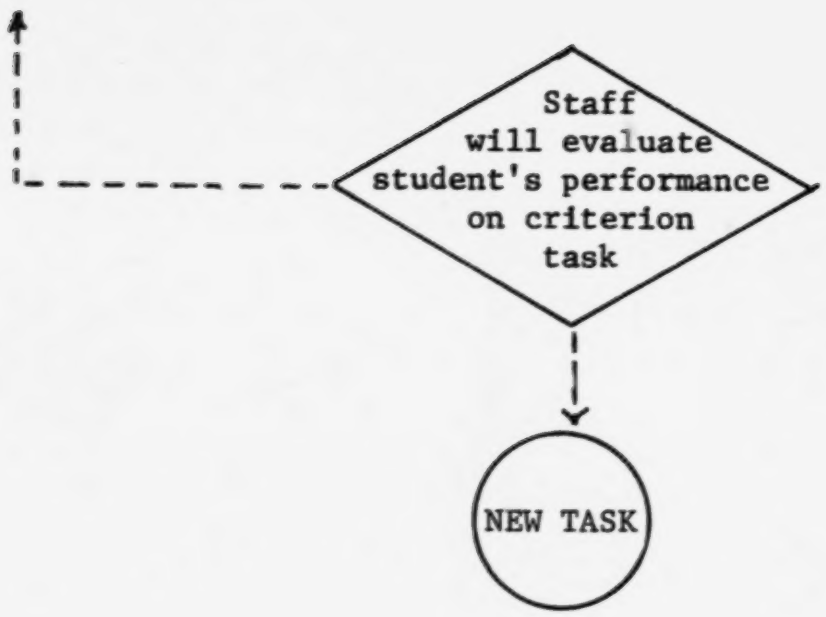
Note: (a) Use curriculum guide and/or appropriate texts of Bellevue system as source of objectives.
(b) Work in small groups (preferably four per group) where peer evaluation is indicated.


Activity: View Vimcet # 3 "Selecting Appropriate Educational Objectives," complete the answer sheet while viewing.
Self-evaluate check answer sheet
TO CRITERION TASK
Activity: See note (a). Write at least one objective at "Lowest Level" and one at "Higher Level."
peer evaluation Note (b)
Activity: Read Tax. of Ed. Obj. pp. 1 - 24. Write brief answers to "Questions to Direct and Assist Reading Sheet."

(Continue on next page)


Activity I: Using the Taxonomy, pp. 62 - 78 and/or print-out 401/1536, Define and/or describe in own words and/or cite examples as directed on Activity I Answer Sheet (disregard decimal notation except for 6 major divisions.)
Activity II: See (a) Write at least two objectives in your own field at the Knowledge Level -- Use record form provided.
Activity III: Repeat Activity I Tax. pp. 89 - 98 and/or print-out. Record on Activity III Answer Sheet.
Activity IV: Repeat Activity II at the Comprehension Level.
Activity V: Repeat Activity I Tax. pp. 120 - 128 and/or print-out. Record on Activity III Answer Sheet.
Activity VI: Repeat Activity II at Application Level.
Evaluate. Dictate at random your objectives from record form to at least 2 other peers independently. Compare their assigned values -- Levels (1.00, 2.00, 3.00) with yours and confer with them until mutual agreement is reached.


Activity VII: Repeat Activity I Tax. pp 144-150 and/or print-out. Record on Activity IV Answer Sheet.
Activity VII: Repeat Activity II at the Analysis Level
Submit your 2 obj. to at least 2 other peers independently for evaluation. Revise if necessary.
Activity IX: Repeat Activity I Tax. pp. 162-176 and/or print-out. Record on Activity IV Answer Sheet.
Activity X: Activity II at the Synthesis Level
Same as Above
Activity XI: Repeat Activity I Tax. pp. 185-195 and/or print-out. Record on Activity IV Answer Sheet.
Activity XII: Activity II at the Evaluation Level
Same as Above
Criterion Task: (Activity I - XII Track) Rewrite 12 objectives on separate cards--randomize, and submit 1 at a time to at least 1 peer for evaluation--revise if necessary. Recompile, key, and present to staff member. Activity Track. Write 12 objectives (2 per level) and key according to 6 levels--submit to staff member.


Staff
will evaluate
student's performance
on criterion
task
NEW TASK

SELECTING APPROPRIATE EDUCATIONAL OBJECTIVES

ANSWER SHEET

1. A B Neither
2. A B
3. A B Neither
4. A B
5. A B Neither
6. A B
7. A B Neither
8. A B Neither
9. A B
10. C = Cognitive
    A = Affective
    P = Psychomotor
    ___(a) ___(c)
    ___(b) ___(d)
11. C A P
12. C A P
13. C A P
14. C A P
15. L H (L = Lowest, H = Higher)
16. L H
17. L H
18. L H
19. C (L or H) A P
20. C (L or H) A P
21. C (L or H) A P
22. C (L or H) A P

Questions to Direct and Assist Reading

The following questions are to help you abstract the main ideas expressed in the introductory pages (1 - 24) of Bloom's Taxonomy. The ordering of the questions parallels the development of the book.

1. What is the meaning of "taxonomy"?

2. What are the values of a taxonomy?

3. What are some problems in organizing a taxonomy?

4. What organizational principles were used in this taxonomy?

5. List and describe the "three domains".

6. What are the major tasks in setting up a taxonomy?

7. What does this taxonomy attempt to classify?

8. List the guiding principles used in the development of the taxonomy.

9. How was work begun on the development of the taxonomy?

10. What is the basic problem of a taxonomy?

11. How are educational outcomes ordered in this taxonomy?

12. What important points are made regarding the usefulness of the taxonomy?

RECORD FORM for Activities II, IV, VI, VIII, X, XII Use pencil.

1.00 Knowledge
Objective 1

Objective 2

2.00 Comprehension
Objective 1

Objective 2

3.00 Application
Objective 1

Objective 2

4.00 Analysis
Objective 1

Objective 2

5.00 Synthesis
Objective 1

Objective 2

6.00 Evaluation
Objective 1

Objective 2

Activity I Answer Sheet	Definition (Optional)	Description (Optional)	Example (Optional)
1.00 KNOWLEDGE			
--of specifics			
--of terminology			
--of specific facts			
--of ways and means of dealing with specifics			
--of conventions			
--of trends and sequences			
--of classification and catagories			
--of criteria			

Activity I Answer Sheet	Definition (Optional)	Description (Optional)	Example (Optional)
--universals and abstractions	_____	_____	_____
--of principles and generalizations	_____	_____	_____
--of theories and structures	_____	_____	_____

Activity III Answer Sheet	Definition (Optional)	Description (Optional)	Example (Optional)
2.00 COMPREHENSION			
Translation			
Interpretation			
Extrapolation			
3.00 APPLICATION			

Activity IV Answer Sheet	Definition (Optional)	Description (Optional)	Example (Optional)
4.00 ANALYSIS			
--of elements	_____	_____	_____
--of relationships	_____	_____	_____
--of organizational principles	_____	_____	_____
5.00 SYNTHESIS	_____	_____	_____
Unique communication	_____	_____	_____
Plan or set of operations	_____	_____	_____
Derivation of a set of abstract relations	_____	_____	_____

Activity IV Answer Sheet	Definition (Optional)	Description (Optional)	Example (Optional)
6.00 EVALUATION	_____	_____	_____
Internal evidence	_____	_____	_____
External criteria	_____	_____	_____

Taxonomy of Educational Objectives

Cognitive Domain

KNOWLEDGE

1.00 KNOWLEDGE

Knowledge, as defined here, involves the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or setting. For measurement purposes, the recall situation involves little more than bringing to mind the appropriate material. Although some alteration of the material may be required, this is a relatively minor part of the task. The knowledge objectives emphasize most the psychological processes of remembering. The process of relating is also involved in that a knowledge test situation requires the organization and reorganization of a problem such that it will furnish the appropriate signals and cues for the information and knowledge the individual possesses. To use an analogy, if one thinks of the mind as a file, the problem in a knowledge test situation is that of finding in the problem or task the appropriate signals, cues, and clues which will most effectively bring out whatever knowledge is filed or stored.

1.10 KNOWLEDGE OF SPECIFICS

The recall of specific and isolable bits of information. The emphasis is on symbols with concrete referents. This material, which is at a very low level of abstraction, may be thought of as the elements from which more complex and abstract forms of knowledge are built.

1.11 KNOWLEDGE OF TERMINOLOGY

Knowledge of the referents for specific symbols (verbal and nonverbal). This may include knowledge of the most generally accepted symbol referent, knowledge of the variety of symbols which may be used for a single referent, or knowledge of the referent most appropriate to a given use of a symbol.

*To define technical terms by giving their attributes, properties, or relations.

*Familiarity with a large number of words in their common range of meanings.

1.12 KNOWLEDGE OF SPECIFIC FACTS

Knowledge of dates, events, persons, places, etc. This may include very precise and specific information such as the specific date or exact magnitude of a phenomenon. It may also include approximate or relative information such as an approximate time period or the general order of magnitude of a phenomenon.

*The recall of major facts about particular cultures.

*The possession of a minimum knowledge about the organisms studied in the laboratory.

1.20 KNOWLEDGE OF WAYS AND MEANS OF DEALING WITH SPECIFICS

Knowledge of the ways of organizing, studying, judging, and criticizing. This includes the methods of inquiry, the chronological sequences, and the standards of judgement within a field as well as the patterns of organization through which the areas of the fields themselves are determined and internally organized. This knowledge is at an intermediate level of abstraction between specific knowledge on the one hand and knowledge of universals on the other. It does not so much demand the activity of the student in using the materials as it does a more passive awareness of their nature.

1.21 KNOWLEDGE OF CONVENTIONS

Knowledge of characteristic ways of treating and presenting ideas and phenomena. For purposes of communication and consistency, workers in a field employ usages, styles, practices, and forms which best suit their purposes and/or which appear to suit best the phenomena with which they deal. It should be recognized that although these forms and conventions are likely to be set up on arbitrary, accidental, or authoritative bases, they

are retained because of the general agreement or concurrence of individuals concerned with the subject, phenomena, or problem.

*Familiarity with the forms and conventions of the major types of works, e.g., verse, plays, scientific papers, etc.

*To make pupils conscious of correct form and usage in speech and writing.

1.22 KNOWLEDGE OF TRENDS AND SEQUENCES

Knowledge of the processes, directions, and movements of phenomena with respect to time.

*Understanding of the continuity and development of American culture as exemplified in American life.

*Knowledge of the basic trends underlying the development of public assistance programs.

1.23 KNOWLEDGE OF CLASSIFICATIONS AND CATEGORIES

Knowledge of the classes, sets, divisions, and arrangements which are regarded as fundamental for a given subject field, purpose, argument, or problem.

*To recognize the area encompassed by various kinds of problems or materials.

*Becoming familiar with a range of types of literature.

1.24 KNOWLEDGE OF CRITERIA

Knowledge of the criteria by which facts, principles, opinions, and conduct are tested or judged.

*Familiarity with criteria for judgment appropriate to the type of work and the purpose for which it is read.

*Knowledge of criteria for the evaluation of recreationnl activities.

1.25 KNOWLEDGE OF METHODOLOGY

Knowledge of the methods of inquiry, techniques, and procedures employed in a particular subject field as well as those employed in investigating particular problems and phenomena. The emphasis here is on the individual's knowledge of the method rather than his ability to use the method.

*Knowledge of scientific methods for evaluating health concepts.

*The student shall know the methods of attack relevant to the kinds of problems of concern to the social sciences.

1.30 KNOWLEDGE OF THE UNIVERSALS AND ABSTRACTIONS IN A FIELD

Knowledge of the major schemes and patterns by which phenomena and ideas are organized. These are the large structures, theories, and generalizations which dominate a subject field or which are quite generally used in studying phenomena or solving problems. These are at the highest levels of abstraction and complexity.

1.31 KNOWLEDGE OF PRINCIPLES AND GENERALIZATIONS

Knowledge of particular abstractions which summarize observations of phenomena. These are the abstractions which are of value in explaining, describing, predicting, or in determining the most appropriate and relevant action or direction to be taken.

*Knowledge of the important principles by which our experience with biological phenomena is summarized.

*The recall of major generalizations about particular cultures.

1.32 KNOWLEDGE OF THEORIES AND STRUCTURES

Knowledge of the body of principles and generalizations together with their interrelations which present a clear, rounded, and systematic view of a complex phenomena, problem, or field. These are the most abstract formulations, and they can be used to show the interrelation and organization of a great range of specifics.

*The recall of major theories about particular cultures.

*Knowledge of a relatively complete formulation of the theory of evolution.

INTELLECTUAL ABILITIES AND SKILLS

Abilities and skills refer to organized modes of operation and generalized techniques for dealing with materials and problems. The materials and problems may be of such a nature that little or no specialized and technical information is required. Such information as is required can be assumed to be part of the individual's general fund of knowledge. Other problems may require specialized and technical information at a rather high level such that specific knowledge and skill in dealing with the problem and the materials are required. The abilities and skills objectives emphasize the mental processes of organizing and reorganizing material ot achieve a particular purpose. The materials may be given or remembered.

2.00 COMPREHENSION

This represents the lowest level of understanding. It refers to a type of understanding or apprehension such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications.

2.10 TRANSLATION

Comprehension as evidenced by the care and accuracy with which the communication is paraphrased or rendered from one language or form of communication to another. Translation is judged on the basis of faithfulness and accuracy, that is, on the extent to which the material in the original communication is preserved although the form of the communication has been altered.

*The ability to understand nonliteral statements (metaphor, symbolism, irony, exaggeration).

*Skill in translating mathematical verbal material into symbolic statements and vice versa.

2.20 INTERPRETATION

The explanation or summarization of a communication. Whereas translation involves an objective part-for-part rendering of a communication, interpretation involves a reordering, rearrangement, or a new view of the material.

*The ability to grasp the thought of the work as a whole at any desired level of generality.

*The ability to interpret various types of social data.

2.30 EXTRAPOLATION

The extension of trends or tendencies beyond the given data to determine implications, consequences, corollaries, effects, etc., which are in accordance with the conditions described in the original communication.

*The ability to deal with the conclusions of a work in terms of the immediate inference made from the explicit statements.

*Skill in predicting continuation of trends.

3.00 APPLICATION

The use of abstractions in particular and concrete situations. The abstractions may be in the form of general ideas, rules of procedures, or generalized methods. The abstractions may also be technical principles, ideas, and theories which must be remembered and applied.

*Application to the phenomena discussed in one paper of the scientific terms or concepts used in other papers.

*The ability to predict the probable effect of a change in a factor on a biological situation previously at equilibrium.

4.00 ANALYSIS

The breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit. Such analyses are intended to clarify the communication, to indicate how the communication is organized, and the way in which it manages to convey its effects, as well as its basis and arrangement.

4.10 ANALYSIS OF ELEMENTS

Identification of the elements included in a communication.

*The ability to recognize unstated assumptions.

*Skill in distinguishing facts from hypotheses.

4.20 ANALYSES OF RELATIONSHIPS

The connections and interactions between elements and parts of a communication.

*Ability to check the consistency of hypotheses with given information and assumptions.

*Skill in comprehending the interrelationships among the ideas in a passage.

4.30 ANALYSIS OF REORGANIZATIONAL PRINCIPLES

The organization, systematic arrangement, and structure which hold the communication together. This includes the "explicit" as well as "implicit" structure. It includes the bases, necessary arrangement, and the mechanics which make the communication a unit.

*The ability to recognize form and pattern in literary or artistic works as a means of understanding their meaning.

*Ability to recognize the general techniques used in persuasive materials, such as advertising, propaganda, etc.

5.00 SYNTHESIS

The putting together of elements and parts so as to form a whole. This involves the process of working with pieces, parts, elements, etc., and arranging and combining them in such a way as to constitute a pattern or structure not clearly there before.

5.10 PRODUCTION OF A UNIQUE COMMUNICATION

The development of a communication in which the writer or speaker attempts to convey ideas, feelings, and/or experiences to others.

*Skill in writing, using an excellent organization of ideas and statements.

*Ability to tell a personal experience effectively.

5.20 PRODUCATION OF A PLAN, OR PROPOSED SET OF OPERATIONS

The development of a plan of work or the proposal of a plan of operations. The plan should satisfy requirements of the task which may be given to the student or which he may develop for himself.

*Ability to propose ways of testing hypotheses.

*Ability to plan a unit of instruction for a particular teaching situation.

5.30 DERIVATION OF A SET OF ABSTRACT RELATIONS

The development of a set of abstract relations either to classify or explain particular data or phenomena, or the deduction of propositions and relations from a set of basic propositions or symbolic representations.

*Ability to formulate appropriate hypotheses based upon an analysis of factors involved, and to modify such hypotheses in the light of new factors and considerations.

*Ability to make mathematical discoveries and generalizations.

6.00 EVALUATION

Judgements about the value of material and methods for given purposes. Quantitative and qualitative judgments about the extent to which material and methods satisfy criteria. Use of a standard of appraisal. The criteria may be those determined by the student or those which are given to him.

6.10 JUDGMENTS IN TERMS OF INTERNAL EVIDENCE

Evaluation of the accuracy of a communication from such evidence as logical accuracy, consistency, and other internal criteria.

*Judging by internal standards, the ability to assess general probability of accuracy in reporting facts from the care given to exactness of statement, documentation, proof, etc.

*The ability to indicate logical fallacies in arguments.

6.20 JUDGMENTS IN TERMS OF EXTERNAL CRITERIA

Evaluation of material with reference to selected or remembered criteria.

*The comparison of major theories, generalizations, and facts about particular cultures.

*Judging by external standards, the ability to compare a work with the highest known standards in its field--especially with other works of recognized excellence.

TEACHING AIMED AT LEARNING ABOVE LEVEL OF MERE RECALL OF KNOWLEDGE

The following chart makes use of the concept of levels of thinking as developed by the Committee of Colleges and University Examiners: Benjamin S. Bloom, editor, Taxonomy of Educational Objectives. The chart was developed in H. E. Ed. 196F at the University of Minnesota, Summer 1960.

				Evaluation (ability to judge the value of ideas, procedures, methods, etc. using appropriate criteria)
			Synthesis (ability to put together parts and elements into a unified organization or whole)	Requires synthesis
		Analysis (ability to break down a communication into constituent parts to make organization of ideas clear)	Requires analysis	Requires analysis
	Application (ability to use ideas, principles, theories in particular & concrete situations)	Requires application	Requires application	Requires application
Comprehension (ability to apprehend what is being communicated and make use of the				

	idea without relating it to other ideas or materials or seeing fullest meaning)				
Knowledge (ability to recall, to bring to mind the appropriate material)	Requires knowledge	Requires comprehension	Requires comprehension	Requires comprehension	Requires comprehension
	Requires knowledge	Requires knowledge	Requires knowledge	Requires knowledge	Requires knowledge

Knowledge - Lowest in the level of thought required. Knowledge includes specific and isolable bits of information such as terms and facts; for example, knowing the meaning of broil or that Viatmin A is found in carrots.

Knowledge also includes knowing ways and means of dealing with specifics such as:

Conventions and customs (e.g., knowing rules of table etiquette or of making introductions)

Trends and sequences (e.g., knowing the order of threading the machine or washing dishes or changes in family patterns over the years)

Classifications and categories (e.g., knowing the classification of nutrients in foods such as foods for energy, foods for regulating and protecting, etc.; or knowing the kinds of weaves by name)

Criteria (e.g., knowing the Basic 4 and Basic 7 to use in judging adequacy of daily meals or knowing the criteria for selecting toys)

Methodology (e.g., knowing a way to operate a vacuum cleaner or ways to handle quarreling children)

In addition, knowledge includes knowing the universals or abstractions in a field such as:

Principles and generalizations (e.g., knowing the principle of proportion, the principles of protein cookery, etc.)

Theories (e.g., the theory of psychological needs as a basis for human motivation)

A teacher can expect only knowledge from students when she has them recite what they have read or heard. Students who memorize, for example, certain guides as to the buying of electrical equipment and go no further in their thinking than oral or written regurgitation of what they have memorized, have gained knowledge but not understanding. This kind of learning is meaningless, makes no change in the person, and tends to be forgotten readily.

Comprehension - When the individual can make use of what she knows (terms, facts, criteria, principles, etc.) she comprehends the meaning. In this lowest level of understanding, the student can explain in her own words, can illustrate or change the form of the idea. In comprehending the meaning of data, she can extend trends beyond the data to determine the implications. In order to comprehend, the student must first have access to knowledge of the idea, fact, etc. (The categories of knowledge - terms, facts, conventions, trends, etc. - also apply in comprehension.)

The teacher can expect comprehension when she teaches so that students have to explain, to use words different from those in which the idea is originally presented. When the teacher asks for examples or has students illustrate through pictures, models, stories, etc., she can expect comprehension.

She can evaluate students' comprehension by the adequacy of the explanation or the illustration.

Application - A higher level of understanding exists in being able to apply comprehension and knowledge of procedures, principles, ideas, criteria, etc. Application can be made only in a new situation (one different from that in which knowledge or comprehension has been gained, i.e., one unfamiliar to the student). The teacher can expect application if, following the student's comprehension of an idea, the teacher sets up appropriate new situations and requires the student to make application of what she remembers and comprehends.

Analysis - We can analyze something only when it has component parts or elements. Therefore, this learning applies to a related set of facts, complex ideas, processes, physical objects or concrete examples, theories, etc.

The teacher can expect learning at this level of analysis, when after students achieve comprehension of necessary knowledge, students are given an idea, theory, example, object, or a process to break down into component parts. For example, menus for a day may be analyzed for food elements according to the Basic 4 Food Groups. Or examples of child behavior may be analyzed as to possible cause-effect relationships. In analyzing the menus for food groups or the examples of child behavior for possible cause-effect relations, the student must remember knowledge, must comprehend, and must apply these in new situations.

Synthesis - The level of understanding at which a student can synthesize is a creative one. It involves being able to put parts of elements together into a whole which is original with the person. Writing a day's menus (original with the student) to include the Basic 4 groups would require synthesis, as would developing a plan for one's wardrobe or for arranging a room or for having a party for children. To set up original hypothesis (e.g., how to remove an actual stain) or to draw original conclusions from a set of fact also would involve learning to the level of synthesis. All of these would require knowledge, comprehension, application, and analysis (to see when the whole is completed).

Evaluation - To ask students to pass original judgement on the value of something develops the highest level of cognitive learning. To make a valid judgement of the desirability of certain toys for children, for example, the student must know and comprehend criteria for selecting toys for children, must be able to apply these criteria to the specific toys, must be able to synthesize all of her thinking to this point into a deduction in order to arrive at a judgement.

To expect learning to the level of evaluation the teacher must, after students comprehend the necessary knowledge, present ideas or new examples for students to evaluate.

Summary through examples - The various levels of learning are illustrated below through objectives and possible ways of achieving.

1. Objectives: Knowledge of the principles of room arrangement.

   Learning Experience: Memorize the principles of room arrangement in the textbook (or from the blackboard or from hearing the teacher recite them).

2. Objectives: Comprehension of the principles of room arrangement.

   Learning Experience: Examine floor plans (or pictures or examples of actual rooms) with teacher explanation of the principles by showing one or more examples of each principle.

3. Objective: Ability to apply the principles of room arrangement.

   Learning Experience: Following the learning experience in 2 above, the teacher presents a "new" floor plan (or picture or actual room) for the student to recognize whether or not each specific principle of room arrangement has been followed.

4. Objective: Ability to analyze a room arrangement for principles observed.

   Learning Experience: Following the learning experience in 2 above (and possibly 3 also), the teacher asks a student to select a floor plan of a room and to analyze it for specific principles followed or not followed.

5. Objective: Ability to synthesize the principles of room arrangement.

   Learning Experience: Following a learning experience such as in 2 above (and possibly 3 and/or 4 also), the teacher asks the students to draw a room floor plan showing arrangement of furniture according to the principles of room arrangement.

6. Objective: Students are presented a floor plan, picture, or actual room to judge for the beauty and convenience of arrangement. (Presumably principles of room arrangement exist for the purposes of beauty and convenience).

WORK SHEET ON LEVELS OF LEARNING

This sheet has
Descriptive words for the level of learning with some suggestion of teaching techniques.
Teaching techniques may be used for various levels.

KNOWLEDGE

Know	Reference reading
Define	Working in groups to prepare lists
Memorize	Circular response
Recall	Charts
List	Flannel graphs
	Socialized resultations
	Films

COMPREHENSION

Restate	Discuss with examples
Discuss	Short paragraphs
Describe	Pictures
Recognize	Models
	Cartoons
	Verses
	Discussion
	Pop Corn session
	Films

APPLICATION

Translate	Minute dramas
Interpret	Role play
Develop	Short stories
Use	Case studies
	Laboratory
	Films
	Demonstration
	Panel

ANALYSIS

Distinguish	Case situations
Identify	Short stories
Analyze	Skits
	Minute dramas
	Panels
	Plays
	Checklists
	Field trip
	Debate

SYNTHESIS

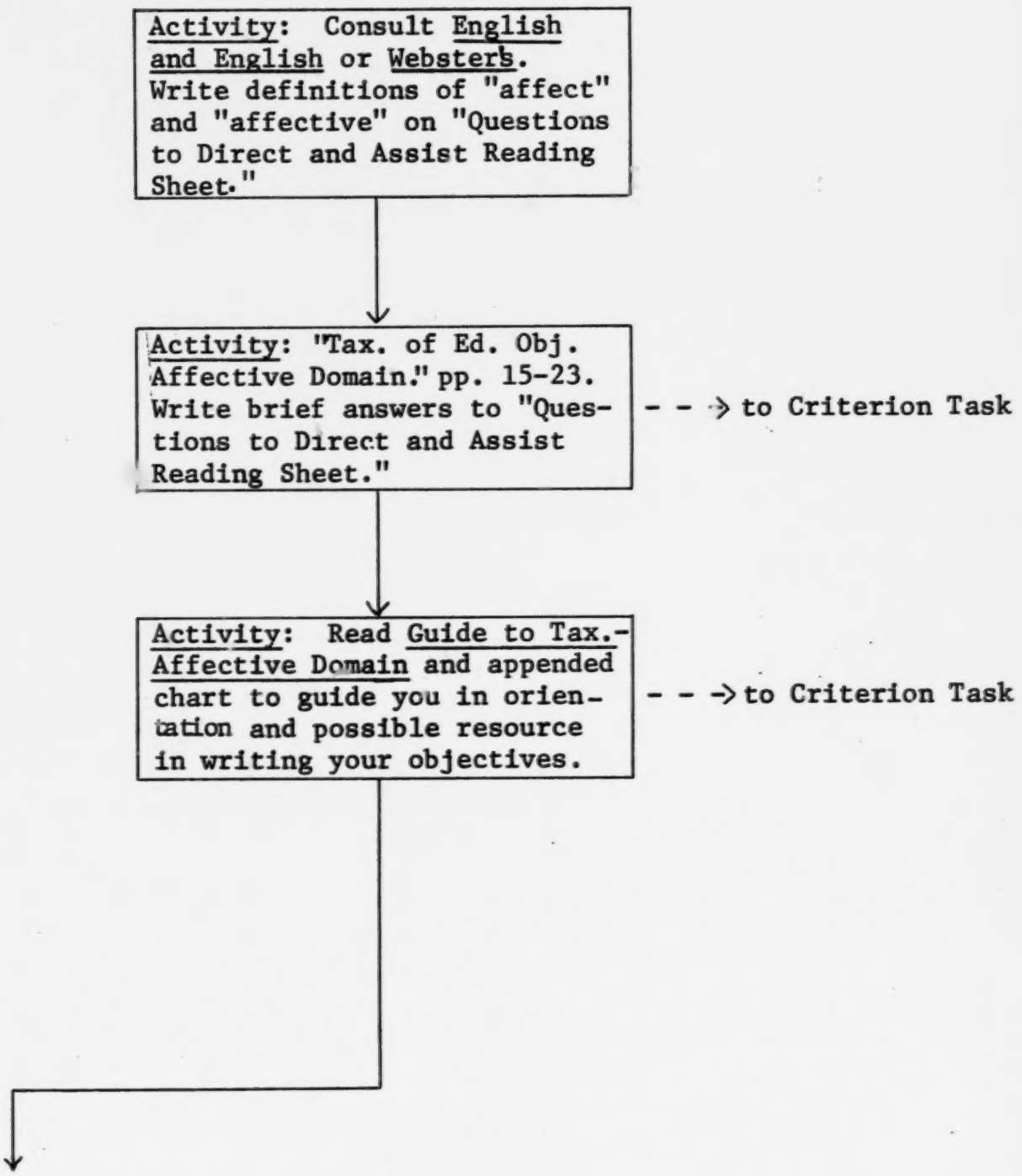
Compose	Write short stories
Plan	Prepare panels
Propose	Prepare checklists
Design	Prepare solution for case situation or short stories
Formulate	Plan laboratory work such as meal preparation
	Drawing or sketching

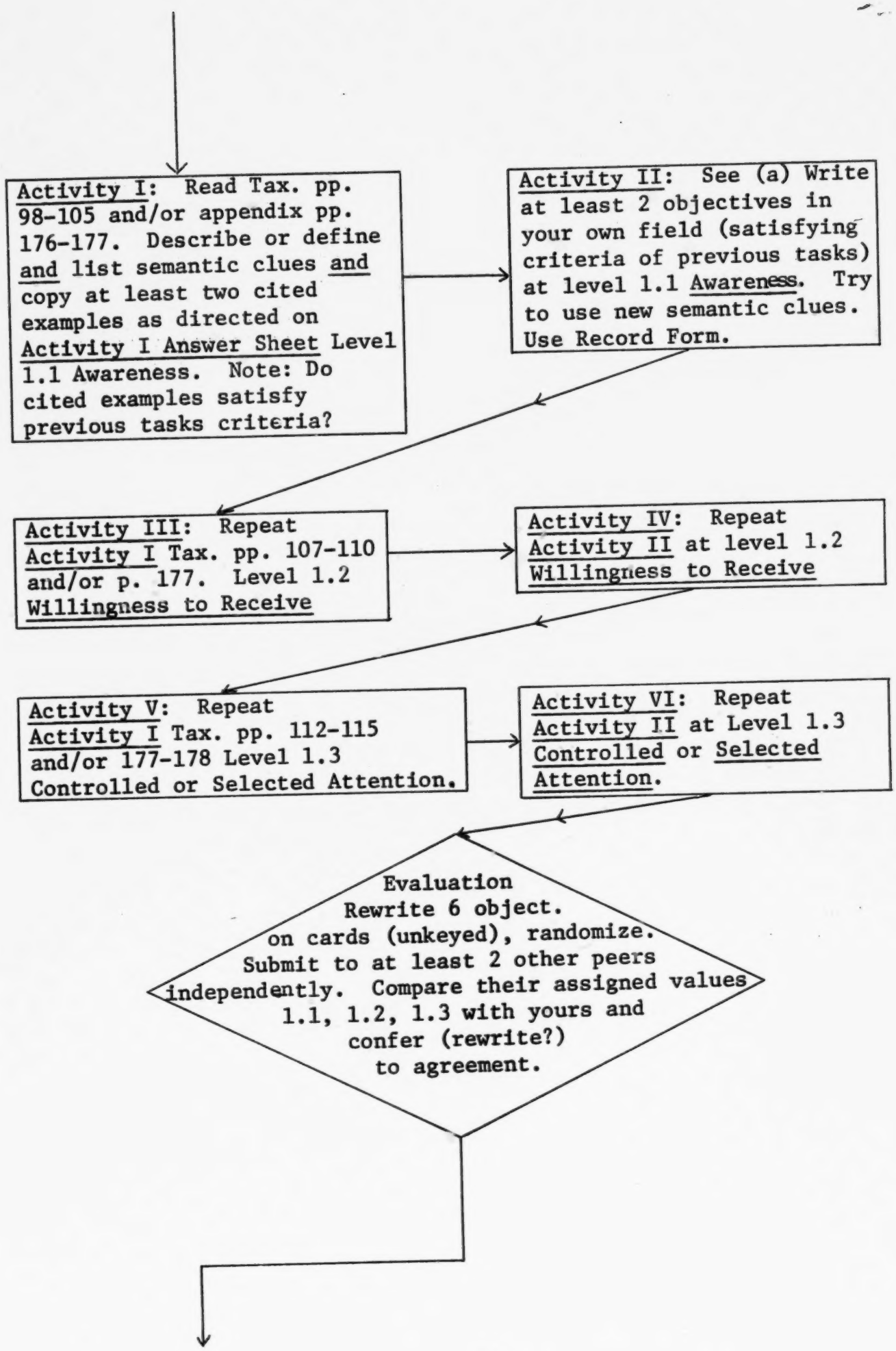
EVALUATION

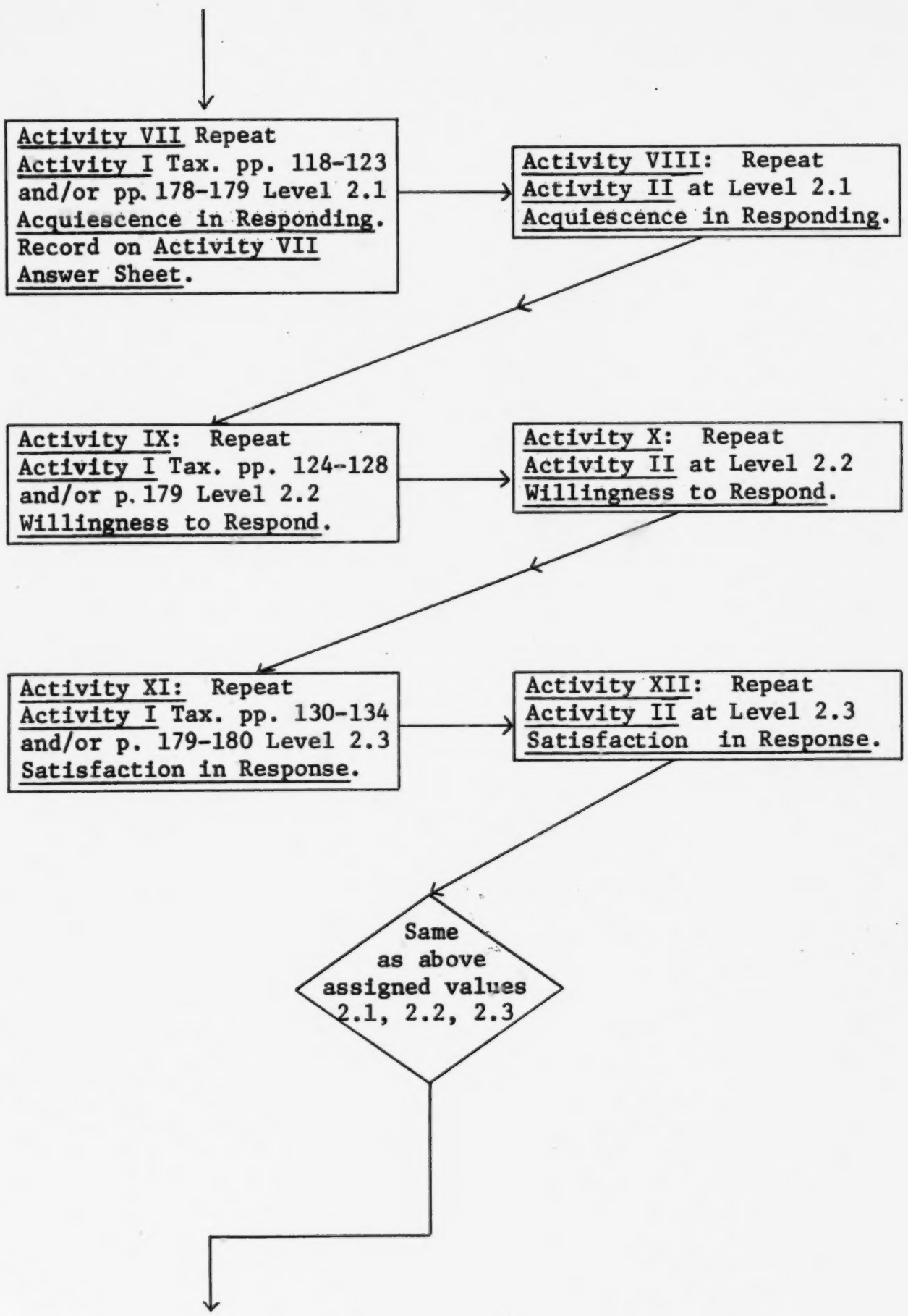
Judge	Score cards
Appraise	Problem situation tests
Evaluate	Role playing
Rate	Observing
Value	
Compare	

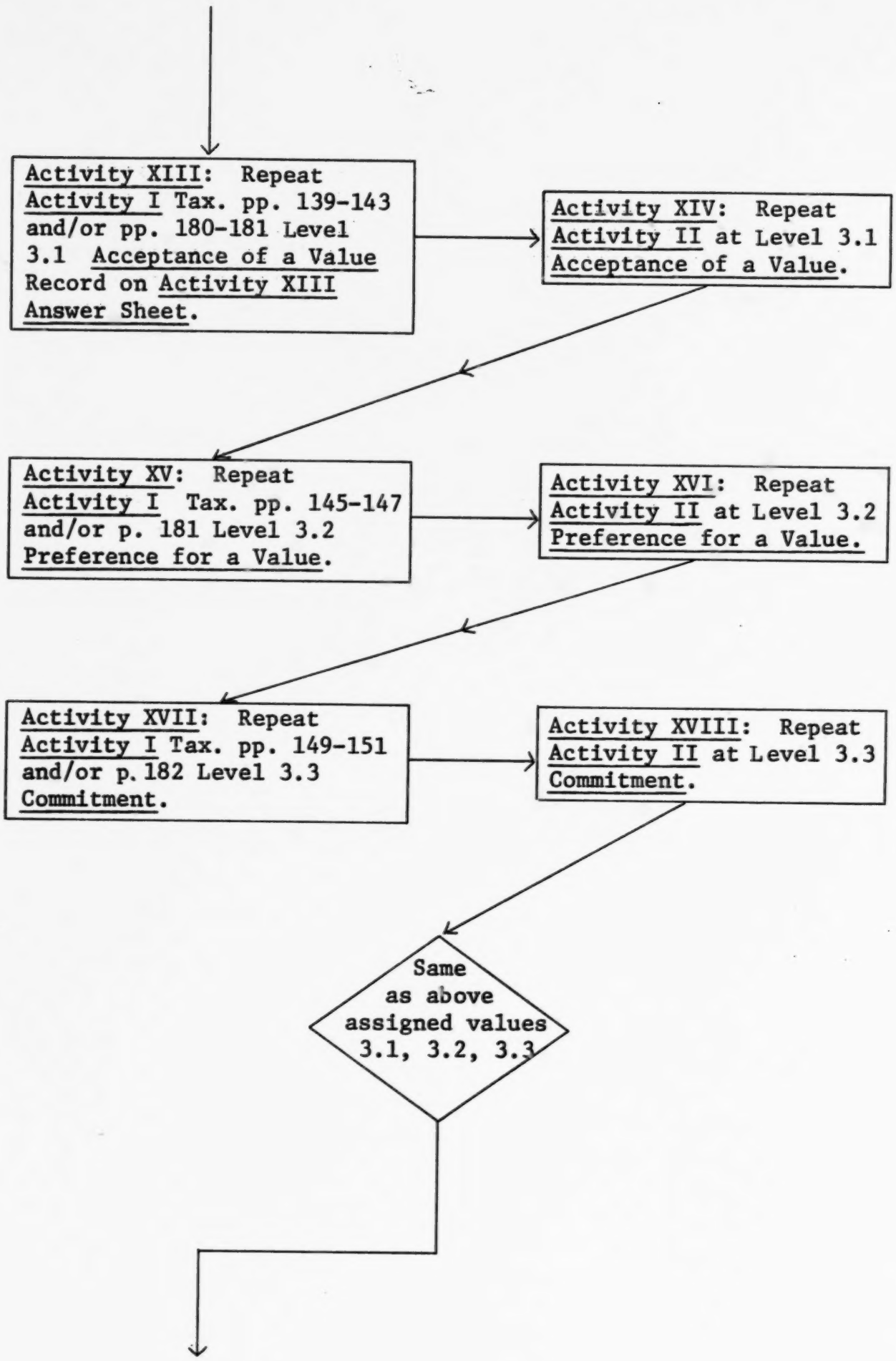
Task # 5: Write behavioral objectives for learning activities (appropriate to your field of teaching) at the first 3 levels specified in the "Taxonomy of Educational Objectives - Affective Domain."

Note: (a) Use curriculum guide and/or appropriate texts of Bellevue system in a classroom setting as sources of objectives.
(b) Work in small groups (preferably 4 per group) where peer evaluation is indicated.

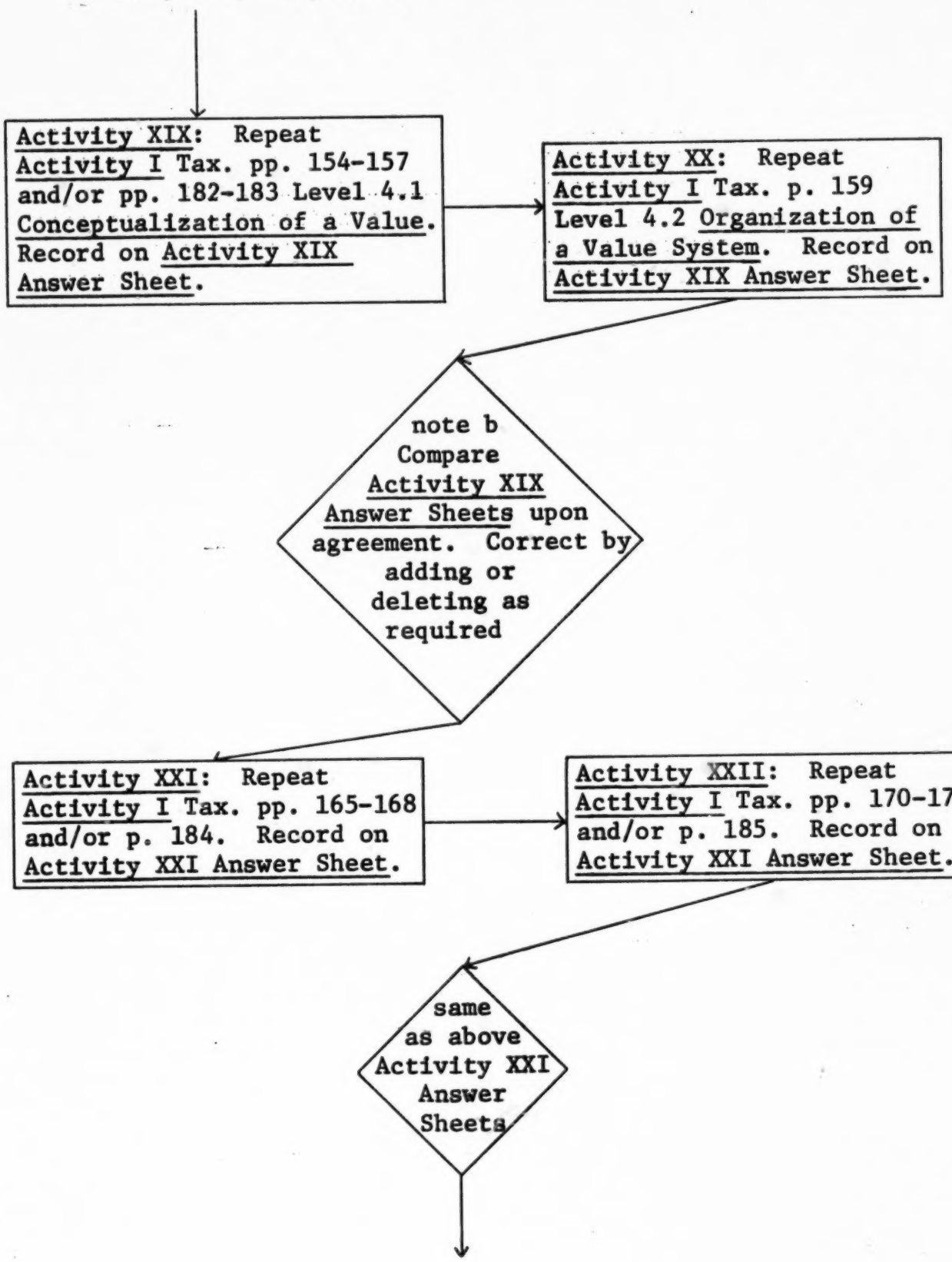

Activity: Consult English and English or Websters. Write definitions of "affect" and "affective" on "Questions to Direct and Assist Reading Sheet."
Activity: "Tax. of Ed. Obj. Affective Domain." pp. 15-23. Write brief answers to "Questions to Direct and Assist Reading Sheet."
- - → to Criterion Task
Activity: Read Guide to Tax.-Affective Domain and appended chart to guide you in orientation and possible resource in writing your objectives.
- - → to Criterion Task

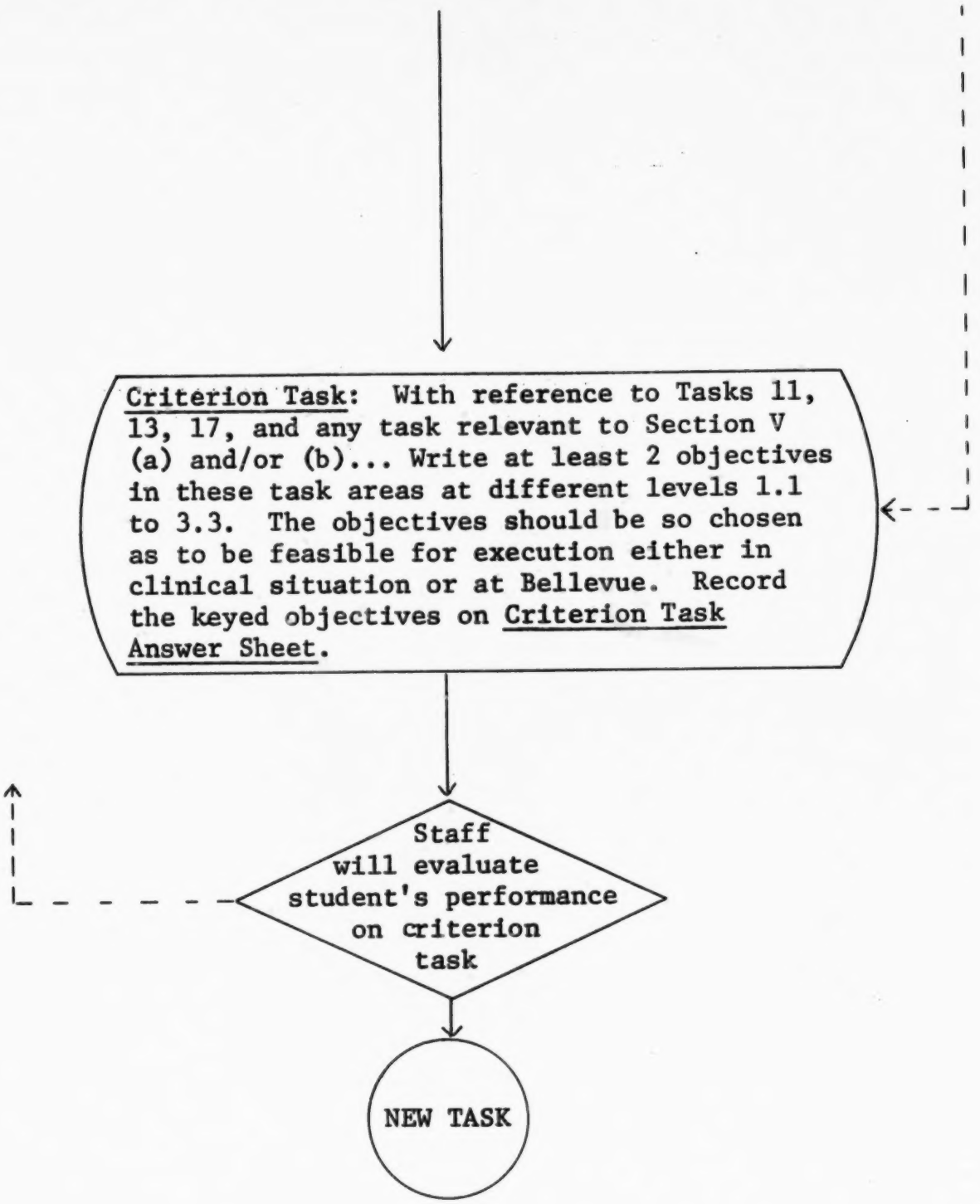

Activity I: Read Tax. pp. 98-105 and/or appendix pp. 176-177. Describe or define and list semantic clues and copy at least two cited examples as directed on Activity I Answer Sheet Level 1.1 Awareness. Note: Do cited examples satisfy previous tasks criteria?
Activity II: See (a) Write at least 2 objectives in your own field (satisfying criteria of previous tasks) at level 1.1 Awareness. Try to use new semantic clues. Use Record Form.
Activity III: Repeat Activity I Tax. pp. 107-110 and/or p. 177. Level 1.2 Willingness to Receive
Activity IV: Repeat Activity II at level 1.2 Willingness to Receive
Activity V: Repeat Activity I Tax. pp. 112-115 and/or 177-178 Level 1.3 Controlled or Selected Attention.
Activity VI: Repeat Activity II at Level 1.3 Controlled or Selected Attention.
Evaluation
Rewrite 6 object.
on cards (unkeyed), randomize.
Submit to at least 2 other peers independently. Compare their assigned values 1.1, 1.2, 1.3 with yours and confer (rewrite?) to agreement.


Activity VII Repeat Activity I Tax. pp. 118-123 and/or pp. 178-179 Level 2.1 Acquiescence in Responding. Record on Activity VII Answer Sheet.
Activity VIII: Repeat Activity II at Level 2.1 Acquiescence in Responding.
Activity IX: Repeat Activity I Tax. pp. 124-128 and/or p. 179 Level 2.2 Willingness to Respond.
Activity X: Repeat Activity II at Level 2.2 Willingness to Respond.
Activity XI: Repeat Activity I Tax. pp. 130-134 and/or p. 179-180 Level 2.3 Satisfaction in Response.
Activity XII: Repeat Activity II at Level 2.3 Satisfaction in Response.
Same as above assigned values 2.1, 2.2, 2.3


Activity XIII: Repeat Activity I Tax. pp. 139-143 and/or pp. 180-181 Level 3.1 Acceptance of a Value Record on Activity XIII Answer Sheet.
Activity XIV: Repeat Activity II at Level 3.1 Acceptance of a Value.
Activity XV: Repeat Activity I Tax. pp. 145-147 and/or p. 181 Level 3.2 Preference for a Value.
Activity XVI: Repeat Activity II at Level 3.2 Preference for a Value.
Activity XVII: Repeat Activity I Tax. pp. 149-151 and/or p. 182 Level 3.3 Commitment.
Activity XVIII: Repeat Activity II at Level 3.3 Commitment.
Same as above assigned values 3.1, 3.2, 3.3

Note: You will not be required to write objectives at levels 4.1, 4.2, 5.1, 5.2


Activity XIX: Repeat Activity I Tax. pp. 154-157 and/or pp. 182-183 Level 4.1 Conceptualization of a Value. Record on Activity XIX Answer Sheet.
Activity XX: Repeat Activity I Tax. p. 159 Level 4.2 Organization of a Value System. Record on Activity XIX Answer Sheet.
note b Compare Activity XIX Answer Sheets upon agreement. Correct by adding or deleting as required
Activity XXI: Repeat Activity I Tax. pp. 165-168 and/or p. 184. Record on Activity XXI Answer Sheet.
Activity XXII: Repeat Activity I Tax. pp. 170-173 and/or p. 185. Record on Activity XXI Answer Sheet.
same as above Activity XXI Answer Sheets


Criterion Task: With reference to Tasks 11, 13, 17, and any task relevant to Section V (a) and/or (b)... Write at least 2 objectives in these task areas at different levels 1.1 to 3.3. The objectives should be so chosen as to be feasible for execution either in clinical situation or at Bellevue. Record the keyed objectives on Criterion Task Answer Sheet.
Staff will evaluate student's performance on criterion task
NEW TASK

QUESTIONS TO DIRECT AND ASSIST READING

Definition(s)

Affect:

Affective:

1. What reason is advanced for developing the cognitive taxonomy before the affective taxonomy?

2. List 2 causes for the "Erosion of Affective Objectives."

3. Briefly state the 2 reasons given for the hesitation to use affective measures for grading purposes.

4. Write brief statements of the 2 research findings of Jacob.

5. What conclusions are intended to be drawn from the examination of the 6 objective statements?

GUIDE TO TAXONOMY -- AFFECTIVE DOMAIN

The appended chart represents a schematic outline of educational objectives (behaviors) having primarily affective components. The following points are made in an effort to interpret the outline to the student.

(1) The categories prefixed with decimal notations are descriptive of behaviors. Thus we speak, for example, of 1.0 Receiving (behavior) or 3.3 Commitment (behavior).

(2) The Taxonomy represents an overlapping continuum of affective behavior in spite of the discrete or discontinuous appearance of the outline. To illustrate: One does not terminate valuing behavior to initiate organization behavior.

(3) The hierarchial ordering of the categories is based upon the following congruents:

(a) an increase of internalization (incorporation of something within the mind or adopting as one's own, the ideas, practices, standards or values of another person or of a society).

(b) a parallel increase in the willingness to expend energy or stick out one's neck for the sake of what is believed, ie. a demonstrative willingness to assume greater risk.

(c) an increase in emotional involvement or intensity as articulated in a response behavior. To illustrate: The responding behavior of someone willing to die for his beliefs would be assigned Level 5.2.

(4) A facsimile of the outline appears on p. 37 in the Taxonomy. The commonly used labels, interest, appreciation, etc., are not included and should not be used in formulating objectives--the reason being the lack of precision in meaning due to the wide range of their referent affective behaviors. To illustrate: "The student should become interested in good books,"

could imply affective responding behavior all the way from 1.1 being aware that good books exist to level X wherein the student turns his house into a lending library... Clearly evaluating such an objective is impossible.

(5) Reference is made to the term "Response Variables" (see Activity Answer Sheets). The attempt here is to encourage the student to include in his objective statements, variables indicative of desired responding behavior rather that inferential behavior. For example, "The student will encourage others not to litter the school grounds," is an objective which states a desired form of overt behavior, ie. the behavior of actively recruiting other students in a task. Thus formulated, the objective is more amenable to precise evaluation whereas the objective, "The student will value a clean school ground," can only be evaluated on an imprecise basis.

(6) Implicit in the Taxonomy is the positive orientation of desired affective behavioral responses as opposed to the negative, ie. responses which are socially condoned or accepted -- in practice, objectives are rarely stated in terms of such respondent behaviors as fear, disgust, indignation, etc.

(7) As further notified, you will not be required to write objectives at the 4.0 and 5.0 levels--for two reasons.

(a) The achievement of such affective behaviors is a function of a considerable duration of time (perhaps even longer than one school year).

(b) The best attempts in formulating these two levels leave something to be desired with respect to clarity of definition and subsequently the degree to which they could be operationally useful to the teacher. Knowledge of their characteristics is however required to give you an overall conception of the Taxonomy.

(8) Some labels have been included in the outline to reinforce point 3.

SCHEMATIC OUTLINE OF TAXONOMY OF EDUCATIONAL OBJECTIVES -- AFFECTIVE DOMAIN

1.0 RECEIVING (BEHAVIOR)	2.0 RESPONDING (BEHAVIOR)	3.0 VALUING (BEHAVIOR)	4.0 ORGANIZATION (BEHAVIOR)	5.0 CHARACTERIZATION BY A VALUE COMPLEX (BEHAVIOR)
1.1 AWARENESS - is tuned in	2.1 ACQUIESCENCE IN RESPONDING	3.1 ACCEPTANCE OF A VALUE - admits agreement with others	4.1 CONCEPTUALIZATION OF A VALUE - is willing to introduce others to try	5.1 GENERALIZED SET - will do despite possible sacrifice
1.2 WILLINGNESS TO RECEIVE - expresses willingness to get in tune	2.2 WILLINGNESS TO RESPOND	3.2 PREFERENCE FOR A VALUE - is willing to share activity	4.2 ORGANIZATION OF A VALUE SYSTEM - has shown "soap box" behavior	5.2 CHARACTERIZATION - sacrifice has been made
1.3 CONTROLLED OR SELECTED ATTENTION - shows that he has tuned in	2.3 SATISFACTION IN RESPONSE	3.3 COMMITMENT - has shown that a behavior has been shared		
neutral		← Compulsion	← personal risk and sacrifice	biased
		← emotional reaction		
		← inner control		Increase in:
		Internalization		← Conscious to unconscious
				← External to internal

FIGURE 1

RECORD FORM FOR ACTIVITES II, IV... (use pencil)

1.0 RECEIVING	Awareness	Obj. 1
		Obj. 2
	Willingness	Obj. 1
		Obj. 2
	Controlled or selected attention	Obj. 1
		Obj. 2
2.0 RESPONDING	Acquiescence in respondence	Obj. 1
		Obj. 2
	Willingness to respond	Obj. 1
		Obj. 2
	Satisfaction in response	Obj. 1
		Obj. 2
3.0 VALUING	Acceptance of a value	Obj. 1
		Obj. 2
	Preference for a value	Obj. 1
		Obj. 2
	Commitment	Obj. 1
		Obj. 2

Activity VII
Answer Sheet

Description and/or Definition
Underline Response Variables

Semantic Clues

2 Cited Examples

2.0 RESPONDING

2.3 Satisfaction in response	2.2 Willingness to respond	2.1 Acquiescence in responding

Activity XIII
Answer Sheet

Description and/or Definition
Underline Response Variables

Semantic Clues

2 Cited Examples

3.0 VALUING

3.1 Acceptance of a value	3.2 Preference for a value	3.3 Commitment

Activity XIX
Answer Sheet

Description and/or Definition
Underline Response Variables

Semantic Clues

2 Cited Examples

4.0 ORGANIZATION

4.2 Organization of a value system	4.1 Conceptualization of a value

Activity XXI
Answer Sheet

5.0 CHARACTERIZATION BY A VALUE COMPLEX

5.2 Characterization

5.1 Generalized Set

Description and/or Definition Underline Response Variables	Semantic Clues	2 Cited Examples

CRITERION TASK ANSWER SHEET (use pencil)

Task 11

Level____Objective 1

Level____Objective 2

Task 13

Level____Objective 1

Level____Objective 2

Task 17

Level____Objective 1

Level____Objective 2

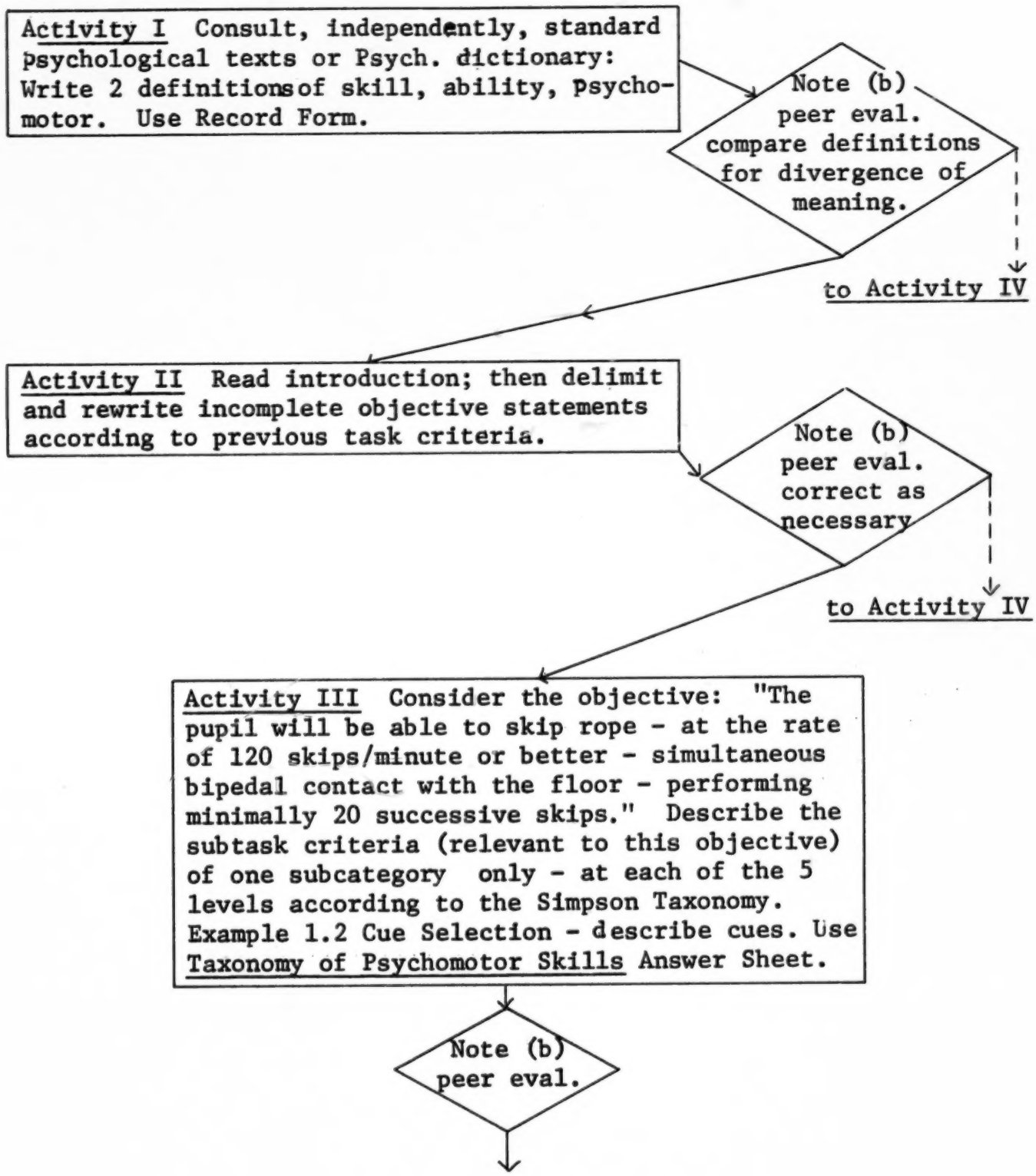
Sect. V a/b

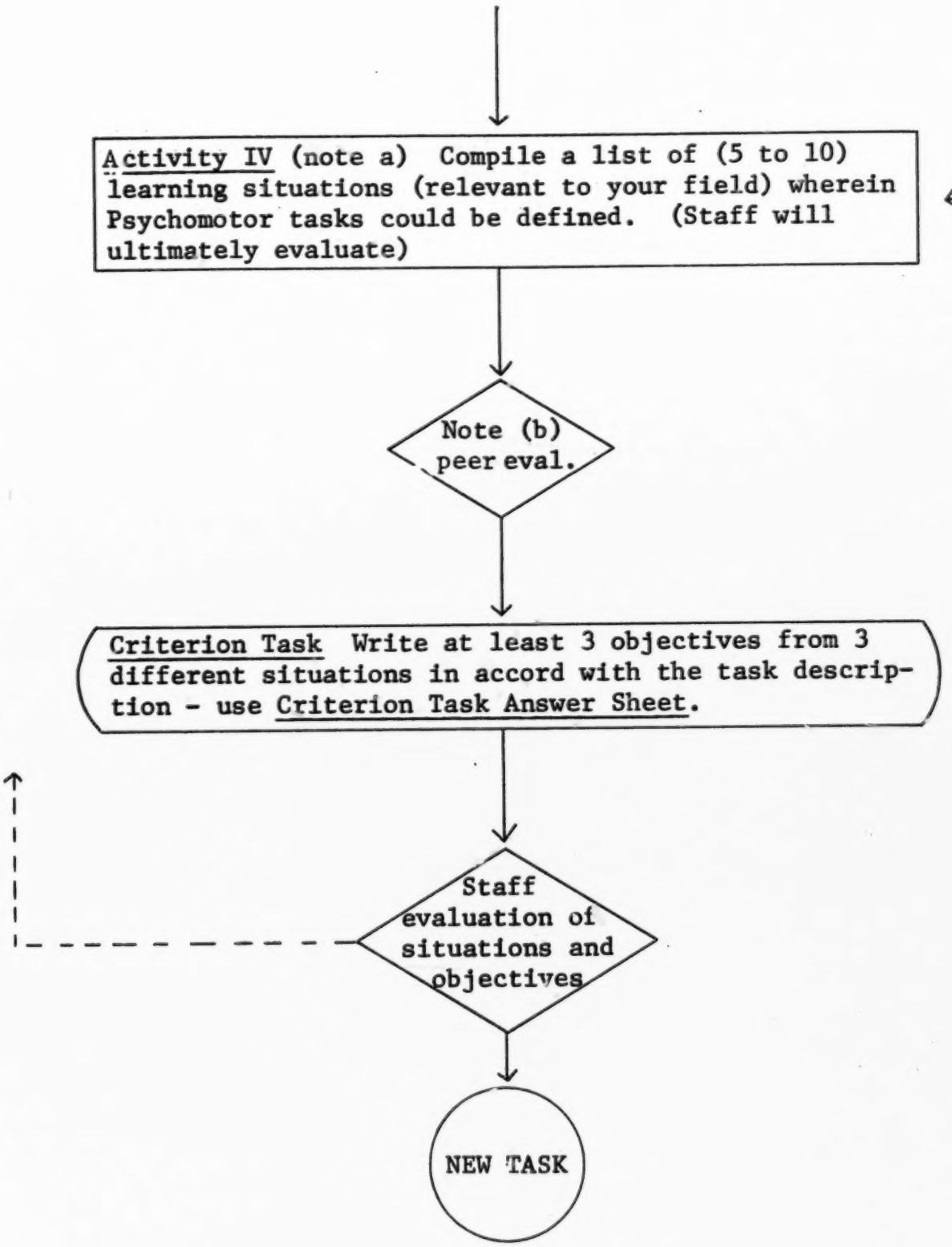
Level____Objective 1

Level____Objective 2

Task # 6: Write behavioral objectives for learning activities (appropriate to your field of teaching) in the psychomotor domain.

Note: (a) Use curriculum guide and/or appropriate texts of Bellevue system as sources of objectives.
(b) Work in small groups (preferably four per group) where peer evaluation is indicated.


Activity I Consult, independently, standard psychological texts or Psych. dictionary: Write 2 definitions of skill, ability, psychomotor. Use Record Form.
Note (b) peer eval. compare definitions for divergence of meaning.
to Activity IV
Activity II Read introduction; then delimit and rewrite incomplete objective statements according to previous task criteria.
Note (b) peer eval. correct as necessary
to Activity IV
Activity III Consider the objective: "The pupil will be able to skip rope - at the rate of 120 skips/minute or better - simultaneous bipedal contact with the floor - performing minimally 20 successive skips." Describe the subtask criteria (relevant to this objective) of one subcategory only - at each of the 5 levels according to the Simpson Taxonomy. Example 1.2 Cue Selection - describe cues. Use Taxonomy of Psychomotor Skills Answer Sheet.
Note (b) peer eval.


Activity IV (note a) Compile a list of (5 to 10) learning situations (relevant to your field) wherein Psychomotor tasks could be defined. (Staff will ultimately evaluate)
Note (b) peer eval.
Criterion Task Write at least 3 objectives from 3 different situations in accord with the task description - use Criterion Task Answer Sheet.
Staff evaluation of situations and objectives
NEW TASK

RECORD FORM

(1) Skill: Definition 1

Definition 2

(2) Ability: Definition 1

Definition 2

(3) Psychomotor: Definition 1

Definition 2

INTRODUCTION

Little progress has been made in the development of a Taxonomy of Educational Objectives - Psychomotor Domain. Although provisional drafts of such have been published, none have achieved a degree of acceptance comparable to the Bloom Taxonomies. (However, the present situation does not in any way prevent one from stating Psychomotor objectives in behavioral terms). One such provisional taxonomy is included in this task for the purpose of aiding the student in the formulation of objectives. (Activity III)

On the surface it would appear that a "Psychomotor Taxonomy" would be relatively easy to construct since most "psychomotor skills" can be identified, at least in terms of required performance criteria and/or end product criteria. Difficulties arise in the choice of the principles or construct upon which the taxonomy could be built and in the lack of precision in the definition of the terms to be used. (Activity I) To illustrate, most educational objectives in the psychomotor domain are stated in terms of abilities or skills such as "The pupil will develop the skill to_____." or "The pupil will develop the ability to _____." Used in the above context, questions as to what constitutes "skill" and "ability," and upon what criteria are they based are valid but difficult to answer.

One consequence with respect to stating psychomotor Objectives should be the avoidance of these labels (skill, ability) unless the criteria (See Task III Activity I) are explicitly included, either in the performance behavior or end product. (Activity II)

INCOMPLETE OBJECTIVE STATEMENTS (Psychomotor Domain)

(1) Language Arts — To develop the ability to write
Rewrite:

Rewrite: — To develop the ability to listen

(2) Science — To develop the skill in using a balance
Rewrite:

(3) Mathematics — To develop the skill to use a compass and protractor
Rewrite

Rewrite: — To develop the skill to write numerals

(4) Vocational — To develop the skill to type
Rewrite:

(5) Physical Ed. — To develop the skill to play tennis
Rewrite:

TAXONOMY OF PSYCHOMOTOR SKILLS ANSWER SHEET

Describe criteria necessary to perform any one subtask x.y.

1.0 Perception	1.1 Sensory Stimulation
	1.2 Cue Selection
	1.3 Translation
2.0 Set	2.1 Mental Set
	2.2 Physical Set
	2.3 Emotional Set
3.0 Guided Response	3.1 Limitation
	3.2 Trial and Error
4.0 Mechanism	4.0 Mechanism
5.0 Complex Overt Resp.	5.1 Resolution of Uncertainty
	5.2 Automatic Performance

CRITERION TASK ANSWER SHEET

Description of learning situations (5 - 10) Enumerate

Criterion Task Objectives 3 (use pencil)

1.

2.

3.

A CONDENSED VERSION OF THE PSYCHOMOTOR DOMAIN (after Simpson)

*Note illustrative objective statements below are incomplete

1.0 PERCEPTION

This is an essential first step in performing a motor act. It is the process of becoming aware of objects, qualities, or relations by way of the sense organs. It is the central portion of the situation--interpretation--action chain leading to purposeful motor activity.

The category of perception has been divided into three subcategories indicating three different levels with respect to the perception process. It seems to the investigator that this level is a parallel of the first category, Receiving or Attending, in the affective domain.

1.1 SENSORY STIMULATION - Impingement of a stimulus upon one or more of the sense organs.

1.11 Auditory - Hearing or the sense or organs of hearing.

1.12 Visual - Concerned with the mental pictures or images obtained through the eyes.

1.13 Tactile - Pertaining to the sense of touch.

1.14 Taste - Ascertain the relish or flavor of by taking a portion into the mouth.

1.15 Smell - To perceive by excitation of the olfactory nerves.

1.16 Kinesthetic - The muscle sense; pertaining to sensitivity from activation of receptors in muscles, tendons, and joints.

Examples of sensory stimulation

Sensitivity to auditory cues in playing a musical instrument as a member of a group.

Awareness of difference in "hand" of various fabrics.

Sensitivity to flavors in seasoning food.

1.2 CUE SELECTION - Deciding to what cues one must respond in order to satisfy the particular requirements of task performance.

This involves identification of the cue or cues and associating them with the task to be performed. It may involve grouping of cues in terms of past experience and knowledge. Cues relevant to the situation are selected as a guide to action; irrelevant cues are ignored or discarded.

Examples of cue selection

Recognition of operating difficulties with machinery through the sound of the machine in operation.

Sensing where the needle should be set in beginning a machine stitching.

Recognizing factors to take into account in batting in a softball game.

1.3 TRANSLATION - Relating of perception to action in performing a motor act. This is the mental process of determining the meaning of the cues received for action. It involves symbolic transactions, that is, having an image or being reminded of something, "having an idea," as a result of cues received. It may involve insight which is essential in solving a problem through perceiving the relationships essential to solution. Sensory translation is an aspect of this level. It involves "feedback," that is, knowledge of the effects of the process; translation is a continuous part of the motor act being performed.

Examples of translation

Ability to relate music to dance form.

Ability to follow a recipe in preparing food.

Knowledge of the "feel" of operating a sewing machine successfully and use of this knowledge as a guide in stitching.

2.0 SET

Set is a preparatory adjustment or readiness for a particular kind of action or experience.

2.1 MENTAL SET - Readiness in the mental sense, to perform a certain motor act. This involves, as prerequisite, the level of perception and its subcategories which have already been identified. Discrimination, that is, using judgment in making distinctions is an aspect.

Examples of mental set

Knowledge of steps in setting the table.
Knowledge of tools appropriate to performance of various sewing operations.

2.2 PHYSICAL SET - Readiness in the sense of having made the anatomical adjustments necessary for a motor act to be performed. Readiness, in the physical sense, involves receptor set, that is, sensory attending, or focusing the attention of the needed sensory organs and postural set, or positioning of the body.

Examples of physical set

Achievement of bodily stance preparatory to bowling.

2.3 EMOTIONAL SET - Readiness in terms of attitudes favorable to the motor acts taking place. Willingness to respond as implied.

Examples of emotional set

Disposition to perform sewing machine operation to best of ability.
Desire to operate a production drill press with skill.

3.0 GUIDED RESPONSE

This is an early step in the development of skill. Emphasis here is upon the abilities which are components of the more complex skill. Guided response is the overt behavioral act of an individual under the guidance of the instructor. Prerequisite to performance of the act are readiness to respond, in terms of set to produce the overt behavioral act and selection of the appropriate response. Selection of response may be defined as deciding what response must be made in order to satisfy the particular requirements of task performance. There appear to be two major subcategories, imitation and trial and error.

3.1 IMITATION - Imitation is the execution of an act as a direct response to the perception of another person performing the act.

Examples of imitation

Imitation of the process of stay-stitching the curved neck edge of a bodice.

Performing a dance step as demonstrated.
Debeaking a chick in the manner demonstrated.

3.2 TRIAL AND ERROR - Trying various responses, usually with some rationale for each response, until an appropriate response is achieved. The appropriate response is one which meets the requirements of task performance, that is, "gets the job done" or does it more efficiently. This level may be defined as multiple-response learning in which the proper response is selected out of varied behavior, possible through the influence of reward and punishment.

Examples of trial and error

Discovering the most efficient method of ironing a blouse through trial of various procedures.
Ascertaining the sequence for cleaning a room through trial of several patterns.

4.0 MECHANISM

Learned response has become habitual. At this level, the learner has achieved a certain confidence and degree of skill in the performance of the act. The act is a part of his repertoire of possible responses to stimuli and the demands of situations where the response is an appropriate one. The response may be more complex than at the preceding level; it may involve some patterning of response in carrying out the task. That is, abilities are combined in action of a skill nature.

Examples of mechanism

Ability to perform a hand-hemming operation.
Ability to mix ingredients for a butter cake.
Ability to pollinate an oat flower.

5.0 COMPLEX OVERT RESPONSE

At this level, the individual can perform a motor act that is considered complex because of the movement pattern required. At this level, a high degree of skill has been attained. The act can be carried out smoothly and efficiently, that is with minimum expenditure of time and energy. There are two sub-categories; resolution of uncertainty and automatic performance.

5.1 RESOLUTION OF UNCERTAINTY - The act is performed without hesitation of the individual to get a mental picture of the task sequence. That is, he knows the sequence required and so proceeds with confidence. The act is here defined as complex in nature.

Examples of resolution of uncertainty

Skill in operation of a milling machine.
Skill in setting up and operating a production band saw.
Skill in laying a pattern on fabric and cutting out a garment.

5.2 AUTOMATIC PERFORMANCE - At this level, the individual can perform a finely coordinated motor skill with a great deal of ease and muscle control.

Examples of automatic performance

Skill in performing basic sets of national folk dances.
Skill in tailoring a suit.
Skill in performing on the violin.